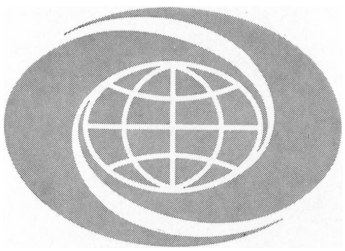

The World Book Encyclopedia

A-L Australasia Volume 23

Field Enterprises Educational Corporation

Chicago Frankfurt London Paris Rome Sydney Tokyo Toronto

The World Book Encyclopedia

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Merchandise Mart Plaza, Chicago, Illinois 60654

Canterbury House, Sydenham Road, Croydon, Surrey CR9 2LR

Field Educational Enterprises of Australasia Pty. Ltd.
Northside Gardens, 168 Walker Street, North Sydney, New South Wales 2060

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Printed in the United States of America

ISBN 0-7166-1076-0

PREFACE

The two Australasian volumes form an integral part of THE WORLD BOOK ENCYCLOPEDIA. They supplement the information on the countries of Australasia contained in the 22 main volumes. The term *Australasia* is used to identify the two volumes in a geographical sense, not a political one. The subject matter of the volumes includes articles relating to Australia, Indonesia, Malaysia, New Zealand, Singapore, and the major island groups in the Pacific Ocean.

There are thousands of topics that are of particular importance mainly within Australasia. The editors decided to include these topics in the two Australasian volumes. A group of distinguished educationists helped them in their choice of articles for these volumes.

A number of articles in the Australasian volumes are paralleled by articles with the same or similar titles in the main volumes. In such cases, the article in the main volumes deals with the topic in general terms, and the Australasian article deals with specific aspects of the topic that are of particular relevance to Australasia. For example, the article on *James Cook* in the main volumes gives a general account of his voyages through Australasian waters. The Australasian biography gives many more details of interest to the people in that area. References from the Australasian articles to relevant articles in the main volumes enable the reader to link his study of local or national aspects of a topic with their world-wide context.

The WORLD BOOK system of cross references has been applied to the two volumes, so that the reader can find quickly the information for which he is looking.

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ABDUL MUIS (1890-1958) was an Indonesian nationalist and writer. His best-known work, *Salah Asuhan* (*Wrong Upbringing*), was published in 1928. He was born in western Sumatra. He studied medicine in Jakarta for three years, but had to give up because of illness. He was a member of the nationalist *Sarekat Islam* (Islamic Union) from 1920 to 1923. He then became a member of the *Volksraad* (people's council).

ABDUL RAHMAN, TUNKU (1903-), was prime minister of Malaysia from 1963 to 1970. A leading statesman in south-eastern Asia, he led the movement for the formation of Malaysia from his position as prime minister of Malaya. Abdul Rahman was born at Alor Star, in northern Malaya, and educated in Malaya, Thailand, and Britain. He joined the civil service as a barrister, then entered politics. He became chief minister of Malaya in 1955 and worked tirelessly for independence. Malaya won its independence in 1957 under Abdul Rahman's leadership.

ABDUL RAHMAN BIN MOHAMMED YASIN, DATO HAJI (1891-1970), a leading Malay civil servant, was appointed president of the *Dewan Negara* (Senate) of the Malaysian parliament in 1963. From 1935 to 1940, he served as treasurer of Johor state. After World War II, he served in the state government of Johor, as a member of the executive council from 1949 to 1955, and as a member of the council of ministers from 1953 to 1955.

ABDUL RAZAK BIN HUSSAIN, TUN (1922-), became prime minister of Malaysia in 1970 after many years service in government. Tunku Abdul Rahman appointed Abdul Razak deputy prime minister and minister of defence in the first government that he formed after the Federation of Malaya became independent in 1957. In addition to holding these positions, Abdul Razak also became minister of national and rural development in 1959. He continued to serve in all three positions after the formation of Malaysia in 1963.

Abdul Razak was born at Pekan, in Pahang, and was educated at the Malay College, Kuala Kangsar, in Perak. During World War II, he joined *Wataniah,* a Malay resistance movement organized by the British to fight the Japanese. After the war, Abdul Razak studied law in Britain, where he became a close friend of Tunku Abdul Rahman. They worked together in a Malay student organization in Britain. Abdul Razak returned to Malaya, and was elected deputy president of the United Malays National Organization (UMNO) in 1951. He entered the parliament of Malaya in 1955, and was immediately appointed minister of education.

ABDULLAH BIN ABDUL KADIR, MUNSHI (1796-1854), a Malayan author, was one of the founders of modern Malay literature. Abdullah introduced a personal note into Malay literature, expressing his own opinions and feelings about events in his own life. His works include *Kisah Pelayaran Abdullah* (1838), an account of a journey he made during local wars on the east coast of Malaya, and *Hikayat Abdullah* (1849), an autobiography. He was born in Malacca. See also LITERATURE OF MALAYSIA AND SINGAPORE (The Beginnings of Modern Literature) in this volume.

ABEL SMITH, SIR HENRY (1900-), was governor of Queensland from 1958 to 1966. He was administrator of the Commonwealth of Australia between the retirement of Lord de L'Isle and the appointment of Lord Casey. He was born in London, and attended the Royal Military College at Sandhurst. He became an officer in the Royal Horse Guards, and acting-colonel of the Corps of Household Cavalry. He was *aide-de-camp* (assistant) to the Earl of Athlone, governor-general of South Africa, from 1928 to 1931.

ABORIGINAL WORDS

ABORIGINAL WORDS are used in Australia for the names of many places, animals, and plants, as well as for Aboriginal objects and customs. Many Australians choose Aboriginal words in naming their houses and boats. State naming boards now approve official names, such as those of suburbs or towns.

During the 1800s, people who made lists of Aboriginal words did not record the exact language and area from which the words came. In many cases, the spellings were inaccurate. Many words that were at first used only in small areas later spread throughout Australia. For example, Captain James Cook encountered the word *kangaroo* in what is now Queensland in 1770. The word then spread to all parts of Australia. Words from the Sydney area, such as *dingo* (native dog), *nulla nulla* (club), and *corroboree* (ceremonial dance) also spread throughout Australia.

Experts have great difficulty in giving exact English translations for Aboriginal words. When asked the name of a place on the bank of a river, an Aborigine might reply with the word for *sand, place of*

COMMON ABORIGINAL WORDS

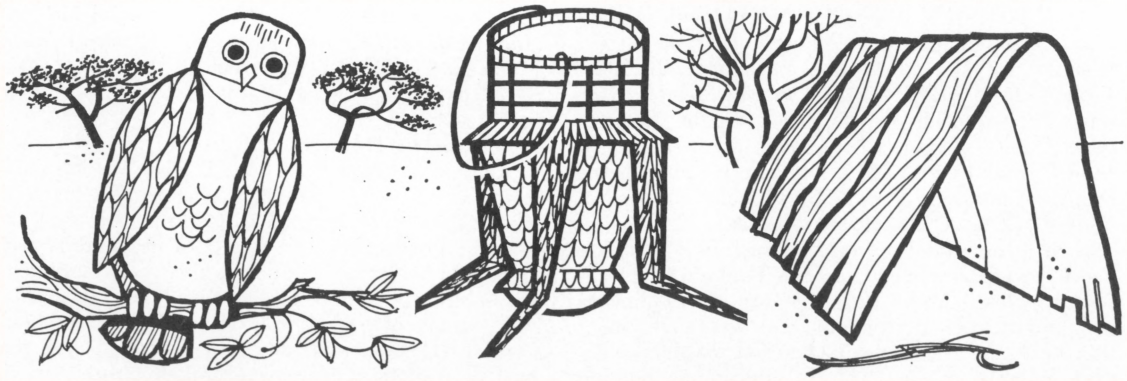
baal	no, not
bangalow	a graceful palm
billabong*	a standing pool
binghi	a brother; an Aborigine
boobook	a small owl
boomerang†	a curved throwing weapon
bora	an initiation ceremony
borak	to tease
boree	a type of wattle
brigalow*	a type of wattle
brolga*	a type of crane
budgerigar*	a parakeet
bunyip*	a mythical water animal
coobah	a type of wattle
cooboo	a child (Western Australia)
cooee	a cry used to attract attention
coolabah, coolibah	a type of gum tree
coolamon	a water-vessel
corroboree	a festival with dancing
currawang	a type of wattle
didjeridu*	a musical instrument
dilly, dilly bag	a bag for personal belongings
dingo†	a native dog; a treacherous person
galah*	a rose-breasted cockatoo; a show-off
gidgee, gidya	a type of wattle
gilgai	a basin-shaped depression
gin	a woman
gunya, gunyah	a hut
hielamon	a bark shield
humpy	a hut
jarrah	a type of eucalypt
joey	a young kangaroo
kalori	a message stick
karri	a type of eucalypt
kurrajong	a type of tree
kylie	a small boomerang
lubra	a woman
mallee	a type of eucalypt
mia mia	a hut
mopoke, morepork	a type of nightjar
morwong	a spiny-finned fish
mulga	an acacia scrub
murry	very much
myall	any of several acacias; a wild Aborigine
namma	a water-hole
nardoo	a clover fern
numbat	a type of marsupial
pademelon	a small wallaby
pinkhi, pinkeye	a festive occasion
pitchi	a water-vessel
pyalla	talk, chat
teraglin	a silver jew-fish
toopong, tupong	a type of fish
waratah	a red-flowering plant
warrigal	a dingo
willy willy	a cyclone or whirlwind
wobegong	a type of shark
wonga, wonga wonga	a large pigeon
wonga wonga	an evergreen climber
wongi	talk, chat
wurley	a hut
yabby	a small crayfish

WORDS USED FOR HOUSE NAMES

allambee	quiet place
amaroo	beautiful place
araluen	place of water lilies
ballima	far away
bulimah	land beyond the sky
carinya	happy home
eurie	many kangaroos
kanna	river
katandra	song of birds
narang	little creek
niela	hill
omaru	beautiful view
paluma	the sea
patanga	place of gum trees
ulamambri	possum country

* Has a separate article in the Australasian volumes of WORLD BOOK.

† Has a separate article in the main volumes of WORLD BOOK.



BOOBOOK DILLY BAG GUNYA

water, or *good hunting,* depending on what he was thinking. For this reason, many place names have several possible meanings. For example, Bullen-Bullen, near Ballina in New South Wales, is variously explained as meaning a *big fight,* a *lonely spot,* or a kind of *parrot.* In addition, Aborigines in the tribal period would not explain some common words because they were the totem names of individual members of the tribes.

Australia has more than a hundred thousand Aboriginal place names. Many of these names were recorded by surveyors in the 1800s. Many refer to certain features of a region occupied by particular tribes.

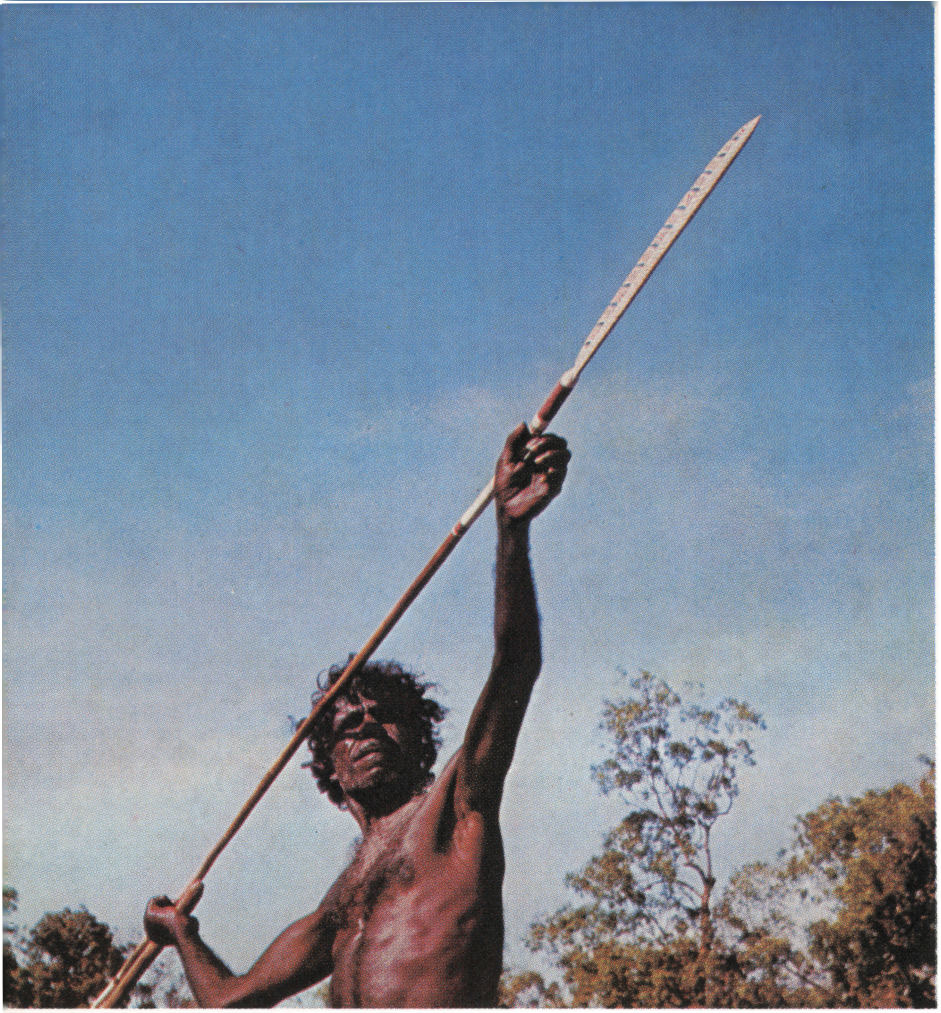
Some names in the same areas have syllables in common. For example, in Queensland, *Indooroopilly* means gully of leaches; *Mutdapilly,* boggy gully; *Yeerongpilly,* gully of sand; and *Jeeropilly,* flying fox gully. In Western Australia, many place names, such as Pallinup and Quindalup, end in *up,* which means *the place of* or *the camp of.*

See also ABORIGINES in this volume.

ABORIGINAL PLACE NAMES

Aloomba, Qld.	spring of water
Ballarat, Vic.	camping place
Barwon, N.S.W.	great wide river
Bealiba, Vic.	red-gum creek
Beltana, S.A.	running water
Bingarrah, W.A.	trees struck by lightning
Boloke, Vic.	lake
Bondahaleera, W.A.	eagles' nesting ground
Booleroo, S.A.	plenty
Brin, Vic.	spring of water
Bulgerup, W.A.	a running spring
Bullarto, Vic.	abundance
Buln-buln, Vic.	the lyrebird
Bungaree, Vic.	my country
Caboolture, Qld.	the carpet snake
Cabramatta, N.S.W.	home of the cobra grub
Calfowie, S.A.	waterhole of the sleepy lizard
Canberra, A.C.T.	a meeting place
Chatterup, W.A.	a boy
Cobar, N.S.W.	red pigment
Colac, Vic.	a rosella parrot
Condobolin, N.S.W.	hop brush
Conmurra, S.A.	stony hill
Coolangatta, Qld.	splendid view of the water
Coonabarabran, N.S.W.	an inquisitive person
Cootamundra, N.S.W.	swamp
Cowra, N.S.W.	rocks
Cudgewa, Vic.	a small plain
Curramulka, S.A.	a deep water-hole
Dubbo, N.S.W.	head covering
Echuca, Vic.	the meeting of the waters
Elanora, Qld.	camp by the sea
Eungella, Qld.	mountain of the mists
Gayndah, Qld.	thunder, or scrubby country
Geelong, Vic.	a swampy plain
Gunnedah, N.S.W.	place of white stone
Gympie, Qld.	stinging trees
Illawarra, N.S.W.	pleasant place by the sea
Jundah, Qld.	a woman
Kalgoorlie, W.A.	three tracks
Kalpara, Qld.	the dry bed of a river
Kiama, N.S.W.	the father spirit
Kingaroy, Qld.	the red ant
Kyabram, Vic.	a thick forest
Langaur, Qld.	sleep
Legerup, W.A.	place where kangaroos dance
Lirambenda, N.T.	a creek
Maroochy, Qld.	the black swan
Menindee, N.S.W.	yolk of an egg
Mildura, Vic.	sore eyes
Momite, Vic.	sun
Moree, N.S.W.	a spring or water-hole
Mudgee, N.S.W.	nest; sit down
Murrumbidgee, N.S.W.	big water
Nanegup, W.A.	a swamp
Nargoon, Vic.	a native bear
Narrabri, N.S.W.	forks
Nowra, N.S.W.	the black cockatoo
Onkaparinga, S.A.	the mother river
Oodnadatta, S.A.	flowers of the mulga
Paroo, Qld.	fish river
Parramatta, N.S.W.	plenty of eels
Quamby, Qld.	sit down; sleep
Queanbeyan, N.S.W.	clear water
Tallygaroopna, Vic.	a large tree
Tantanoola, S.A.	a brushwood shelter
Terang, Vic.	the branch of a tree
Terrigal, N.S.W.	place of many little birds
Ulladulla, N.S.W.	safe harbour
Ulooloo, S.A.	water by the hills; stream
Wagga Wagga, N.S.W.	many crows
Warnagoon, Vic.	a native bear
Warrnambool, Vic.	plenty of water
Wollongong, N.S.W.	hard ground near the water
Wongyarra, S.A.	water in movement
Woy Woy, N.S.W.	deep water
Wyong, N.S.W.	running water
Yackamurundie, S.A.	sister to the big river
Yarra, Vic.	running water
Yass, N.S.W.	running waters
Yerrup, W.A.	a watering place
You Yangs, Vic.	big hill

NUMBAT KALORI NULLA NULLA



Aboriginal Hunters on Mornington Island in the Gulf of Carpentaria used weapons which included carved and painted spears held in spear-throwers. Spearthrowers provided more power and accuracy. By using a spear-thrower, experts could throw a light spear up to 200 yards.

Douglass Baglin

ABORIGINES

ABORIGINES were the first people to live in Australia. They did not call themselves that. They had names for their own tribes and neighboring tribes, but no one name to cover all the people who lived on the continent. As a result, people call them Aborigines, spelled with a capital 'A', to mark them off from the *aborigines* (original inhabitants) of other lands.

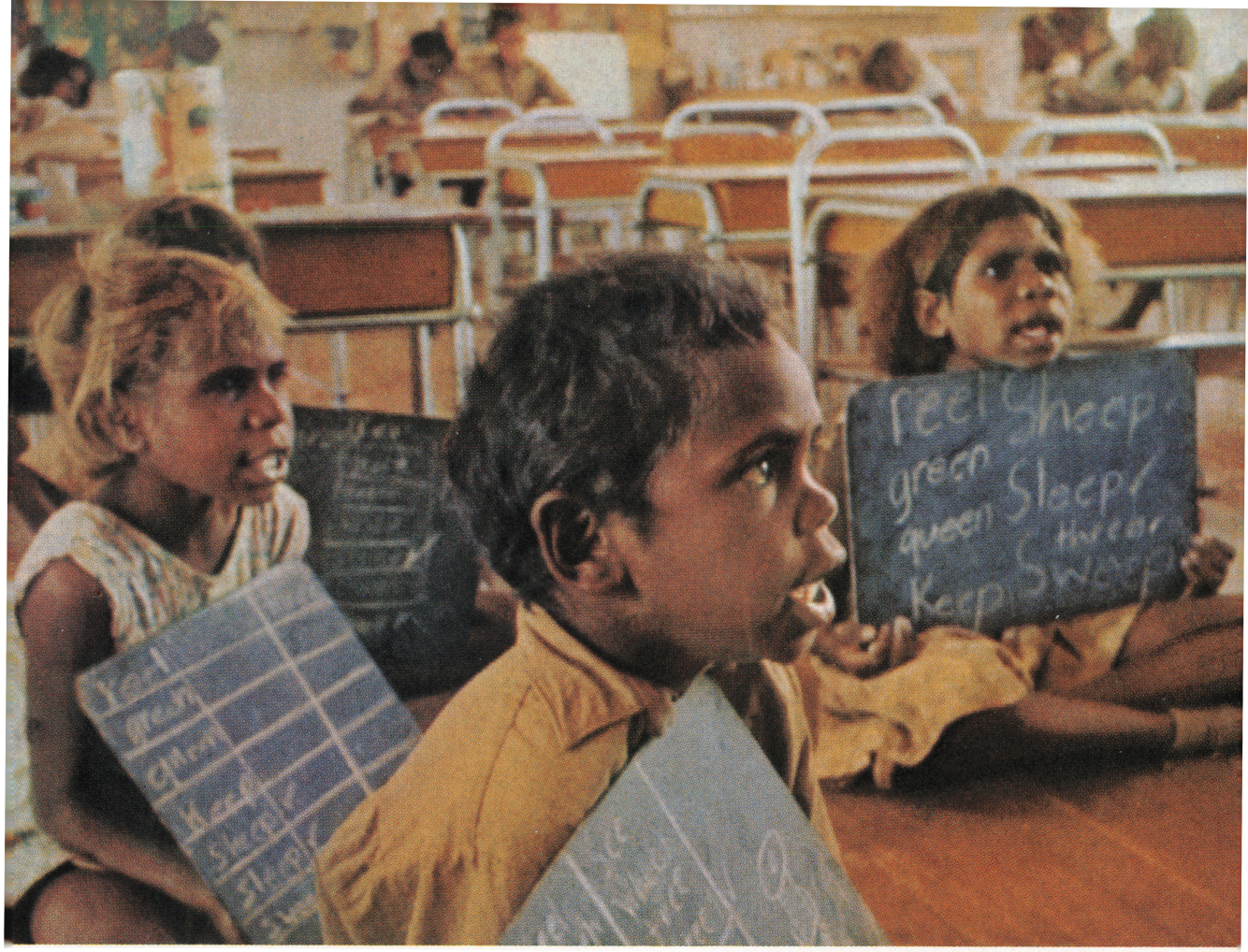
Aborigines have lived in Australia for at least 30,000 years. It is likely that they came from south-eastern Asia. They physically resemble small groups of people who live in some parts of south-eastern Asia today. And historians have a number of other reasons for believing that the Aborigines once lived there.

When Europeans began to settle in Australia in 1788, there were at least 300,000 Aborigines altogether. Their number dropped sharply. In the 1971 census, 115,953 people identified themselves as being of Aboriginal descent. This figure includes 9,663 Torres Strait Islanders.

In the Northern Territory, Aborigines and Torres Strait Islanders total about 23,400; in Queensland, the total of the two groups is about 32,000; in Western Australia, about 22,200; in South Australia, about 7,300; in Victoria, about 6,400; in New South Wales, about 24,000; in Tasmania, about 700; and in the Australian Capital Territory, about 260. The number of Aborigines is increasing in all parts of Australia.

Many of the full bloods live on Aboriginal reserves, either on mission settlements or on government settlements. Others live and work on large cattle and sheep stations and in country towns. Some of their traditional ways still survive in a few areas, but they have changed a great deal. Part Aborigines also live in country towns and settlements, in southern cities, and in Darwin.

All Aborigines are now Australian citizens with voting rights. Among those who have become famous in Australia and overseas are the painter Albert Namatjira; Charles Perkins, the first university



Ted Spiegel, Rapho Guillumette

Aboriginal Children in the Northern Territory have a special teaching programme designed to take into account their distinctive way of life, but the emphasis is on integration.

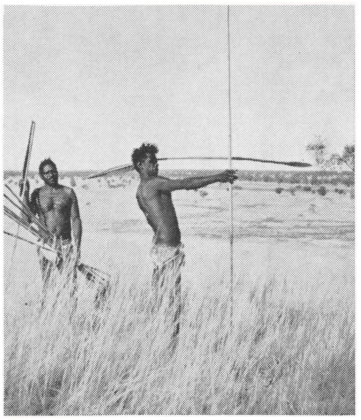
graduate of Aboriginal descent; and Lionel Rose, a world boxing champion.

The Aborigines lived by hunting and by collecting food. They were *semi-nomadic*—that is, they moved over limited areas of the countryside. They made weapons, tools, and utensils from their own local resources. For men, the most important weapons were spears, which they used in fighting, hunting, and fishing. A man could fling his spear with greater speed and force if he fitted the end of the shaft into a spearthrower. Men in many areas also had boomerangs. These weapons were not the same size and shape everywhere, and the famous *returning boomerang* was used in only a few areas.

Traditionally, the Aborigines went naked except for ornaments, body decorations, waistbands, and *pubic coverings*—that is, covering between the legs. In south-eastern and south-western Australia, they sometimes wore cloaks of kangaroo and other fur in cold weather. Their travelling camps were mostly windbreaks of green branches, and they liked to sleep in the open, close to their camp fires. To protect themselves from heavy rain, cold winds, or mosquitoes, they made little huts, mostly of bark. In Australian English, words for such huts derived from Aboriginal terms include *gunyah, humpy, maia-maia,* and *wurley.*

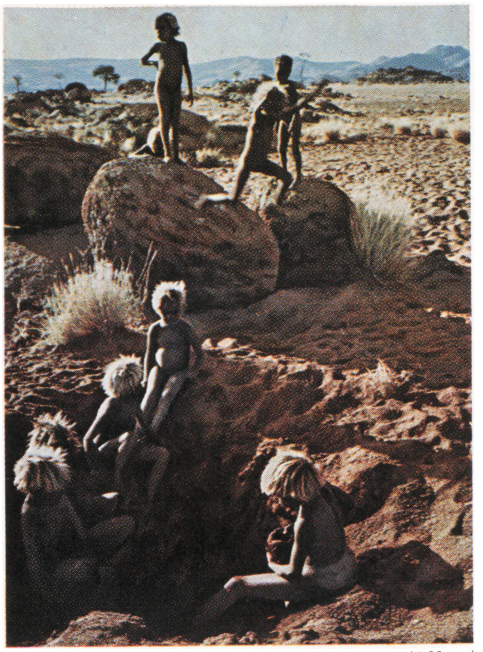
Women searched for vegetable foods and small animals, while men hunted larger game. In coastal areas they got fish and shellfish, and men used nets and harpoons for turtles and larger sea animals. They moved from place to place, according to the seasons. But they nearly always kept to their tribal territories, in country they knew really well. When food was plentiful, more people came together and the camps were larger. They split up into smaller groups in bad seasons and, as one waterhole dried up, they moved on to the next.

Other Australians have the mistaken idea that everyone of Aboriginal descent has an urge to go on a *walkabout* from time to time to get away from settled life. In traditional life, they had to move about to find food. Today, Aborigines sometimes use walkabout as an excuse to escape from unpleasant working conditions, or simply as an expression to mean *going on holiday.*



Hunting was usually a task for the men. They were among the most skilful and patient hunters in the world.

Finding Water was vital for the Aborigines, even as children. They often had to dig for water in dry creeks.



Australian News and Information Bureau; David Moore

ABORIGINES / *Ways of Life*

The Australian Aborigines did not live in exactly the same way in all parts of the continent, but they did have many things in common. They lived close to nature. And they depended directly on their natural surroundings for their food. In dry areas, some tribal territories covered hundreds of square kilometres. In the more fertile coastal areas, each tribe had a smaller territory and the population was not so scattered. Desert people had to rely more on roots, seeds, and small animals for food. People along the coasts and some of the large rivers had fish, but they liked other foods as well. Women collected most of the food for their families. They could nearly always find something, even when the men had to return to camp empty-handed.

In every season, people knew what foods should be ready and where to look for them. Each tribe had its seasonal calendar. This calendar was based on such signs as rainfall, temperature, changing winds, the movement of the clouds, the size of growing plants, the flowering of *gum trees* (eucalypts) and other trees, and the drying of the high grass that showed it was ready for the yearly burning off. Only drought or floods caught them really unprepared.

Everything that happened within their natural surroundings was like an open book to them. They knew how to recognize the habits of all the creatures and plants around them. They also had practical skills. On the whole, it was a hard life. But people found time for leisure and relaxation.

Finding Food. All the areas where Aborigines lived contained enough animals and plants to enable them to survive. In normal seasons, they never used up all their supplies.

The number of food-bearing plants was quite large. Some areas had as many as 250 varieties of food plants. In poor areas, there were only about 50 varieties. Not all of these were ready at the same time, and some of them were used only in an emergency. Most Aborigines liked meat best, even where they had plenty of fish. But their main foods were vegetable roots, or seeds that women ground into flour for flat cakes. They were fond of various kinds of wild honey. Goannas were another delicacy. These lizards taste rather like chicken. The Aborigines caught and ate almost every kind of animal—not only kangaroos, wallabies, and emus, but smaller creatures such as possums, bandicoots, and carpet snakes. They liked shellfish, crabs, oysters, wild fowl and their eggs, turtles and tortoises and their eggs, and even flying foxes.

They did not like some foods, such as bitter fruits and some insects, but they ate them when they had to. They searched eagerly for other insects, especially tree and root grubs. These insects were rich in fats and sugars. The best known are the insects of the inland called *witchetty grubs* or *bardi grubs*. These grubs are the *larvae* (young) of certain beetles. They are whitish, and up to 13 centimetres long. Children as well as older people would dig for them and pull them from their holes in tree trunks and roots with sticks. Aborigines sometimes ate them raw, but usually toasted them lightly in hot coals, producing a rich taste like scrambled eggs. Among their other foods were nuts, fungi, tree-gums, honey-laden flowers, water-lily stems and roots, some leaves, the juice of crushed green ants, honey ants, and many kinds of fruits.

Hunting. A successful hunter needed to have detailed knowledge of the animals he was hunting. But that knowledge was not enough by itself. He also needed special skills. And he had to work hard. Spears and spearthrowers were his main weapons, but there were other weapons, too. Among these were boomerangs, clubs, large nets, and fish traps. Hunting dogs were especially useful, not only for running down kangaroos but also for smelling out burrowing animals such as bandicoots. In many areas, dogs were almost part of the family.

An Aboriginal hunter could read all the signs around him and identify all the tracks, however faint. And he was an expert in imitating animals or birds, making the right sounds to attract them or to calm their suspicions. He would take notice of which way the wind was blowing, so that it did not carry the smell of his sweat in their direction. He might even smear mud or clay over his body to hide the human smell and make himself harder to see.

Usually at least two or three hunters would cooperate, although some men hunted alone. A lone hunter had to be more than usually patient, because one method he might use was ambush. When kangaroos or wallabies were asleep in the midday heat, he might go to one of their feeding grounds near a water hole or a patch of fresh green grass. There he would wait in the shelter of a bush or a rock until they came out in the cool of the afternoons. He would single out one of them and draw close to it by crouching, freezing in position whenever they lifted their heads to look around. If he was careful, they would not notice him until it was too late. If they took fright and bounded away, he would wait for the moment when they turned and looked back. If his spear missed, even the fastest runner would have had trouble in following them.

When a large group of people took part in a hunt, they could afford to be less cautious. Women and children would drive the animals toward the men, perhaps by lighting grass fires if the wind was right. Sometimes the men dug pits in readiness. But usually men and women worked separately. Small parties of women and children would set off in the early morning, leaving babies and small children in the camp in the care of elderly people. As a rule, they would not see their menfolk again until late afternoon. During the day, they might eat small snacks of animal intestines or fruit. But they carried back most of what they caught or collected to be shared with the others. This matter of obligation to others was extremely important in Aboriginal society.

The Aborigines knew that emus were curious birds and could be attracted into a trap by a feathered *decoy*—that is, an imitation bird. When one came close, the hidden hunter would spear it or throw a noose around its neck. Another way of catching emus easily was to poison their water. Fish were sometimes caught in the same way. In fact, Aboriginal hunters had all sorts of techniques for catching the various land and water animals they wanted.

Fishing. Pronged spears were popular for fishing. A man would stand quietly, almost waist deep, watching the water with his spear poised. In deeper water he would work from a canoe or a raft. Aborigines used various nets, too, including drag nets and drum baskets. They trapped fish by making dams. They rarely used lines with hooks. But they had detachable harpoons, some attached to *buoys* (floating markers). They used harpoons to catch turtles and *dugongs* (see DUGONG in the main volumes). They also used harpoons to catch dolphins and such big fish as sawfish and shark. They harpooned crocodiles, too, but the really big ones were tough-skinned and hard to kill. Usually several men joined in a hunt, driving the crocodile to the shore or river bank and then spearing. Women never hunted these larger animals. Children helped them in collecting smaller animals, such as shellfish and crabs. But they had to watch out for the powerful claws of the biggest mangrove crabs.

Food Collecting was mostly women's work. They did not use stone axes, as men did, to get a honeycomb from a tree or a possum from inside a hollow trunk. But they managed extremely well with their main tool, a hard, pointed *digging stick*. It was especially good for digging out roots, small burrowing animals, and snakes and lizards. They collected fruits

Making Camp was often a matter of just finding wood for a fire. The Aborigines carried only a few belongings as they moved about from place to place.
Jeff Carter

Douglass Baglin

Aboriginal Hunters in such areas as the open plain country near Derby in Western Australia traditionally returned to camp with a kangaroo or other game they had speared slung over their shoulder.

and berries as well as seeds, nuts, buds, leaves, shoots, bulbs, and root vegetables.

The women had to treat some of these foods before anyone could eat them. Bitter roots had to be soaked. So did cycad palm nuts, which are poisonous without special treatment. Many ordinary foods had to be pounded or crushed. Women in the Great Victoria Desert used to collect small black seeds from bushes. There were 17 varieties in one small area. They rubbed them between their hands and winnowed them by pouring them from one wooden dish to another while the wind blew away the husks. Then they ground them and mixed them into dough. They ate this dough raw or baked it as flat cakes. On the northern coasts, women collected turtle eggs as well as seagull and junglefowl eggs. Women knew as much as men did about their surroundings and the animals and plants that shared the area with them.

Cooking. Some foods were always eaten raw, but some were roasted over an open fire, on live coals, or in an oven. Men usually cooked larger animals such as kangaroo, while women attended to the smaller ones. The simplest kind of oven was used for kangaroo. It was really a shallow pit filled with hot coals and sand, with the animal's leg bones left sticking out. Sometimes they removed an animal's insides and put heated stones into the hollow part of its body. Then they covered it all with more hot stones, sheets of bark, coals, and sand to seal it. In cooking an emu, they left the head uncovered. When steam emerged from its mouth, it was considered to be cooked. Generally, Aborigines liked their meat underdone. For oven-cooking, a turtle was placed on its back. When the breast-plate was removed, the shell contained a rich soup. Yams and bush potatoes were mostly cooked in hot coals or ashes. So were eggs, goannas, snakes, and crabs. Fish were baked in carefully-made wrappings of leaves or paperbark to keep their flavour.

Providing Fire. People usually carried fire when they moved camp, instead of starting a new one each time. Hunters and women out collecting food often carried smouldering fire-sticks. Every small camp had its own fire, and it was rare to see anyone sitting without a fire nearby. If Aborigines needed to start a fire, they generally used the *friction method* —rubbing with a fire drill or a fire saw. Both tools involved hardwood, softwood, and *tinder* (dry material that caught fire easily).

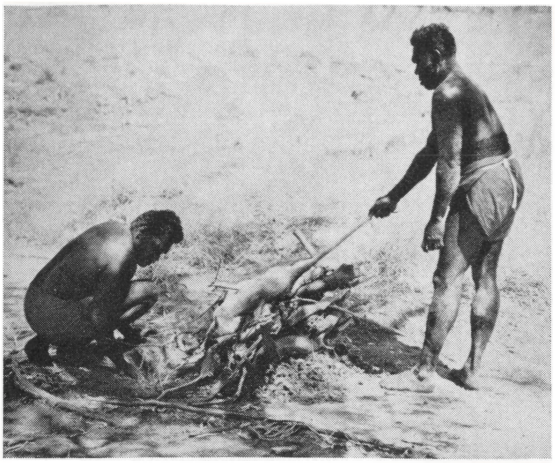
For a *fire drill,* a man stood a hardwood stick upright in the hole in a softwood stick, or in a special pit hole in his shield. Then he twirled the stick rapidly between his palms, moving his hands up and down. For a *fire saw,* he scraped a hardwood stick in a saw-like motion across a split in the softwood. In both cases, the friction produced a smouldering ash in the tinder. He tipped it gently on to some dry grass or bark and blew on it carefully until it burst into flame.

Some Aborigines also used the *percussion* method of making fire—striking two stones together. This technique was known in parts of South Australia and in eastern New South Wales.

Finding Water. Life depended on water, just as it did on food. All adult Aborigines knew, within their territory, where they could expect to find it. Finding water was not a matter of life and death on the northern coasts and on the large southern rivers, but it was certainly so in the deserts. If no surface water was available, Aborigines knew where to dig for water, even in dry sandy creek beds. They also covered waterholes to prevent evaporation and fouling by animals. The roots of some trees, such as mallees, hakeas, bloodwoods, and *wattles* (acacias), give off water. Aborigines dug them out, cut them into useable sections, and sealed the ends with clay until they needed them. Other sources of water were frogs, bottle trees in the Kimberleys, and box trees on the Nullarbor Plains.

Providing Shelter. Aborigines on the move usually slept in the open. But even when they camped for only one night, they always made a rough windbreak of branches and bark. This windbreak was partly for protection against wind, but it also marked the borders of one family group's camp with its own fire or fires.

In cold, dry weather or in the rainy season, Aborigines made more solid shelters. There were three basic varieties. In one, sheets of bark were bent in the middle to form an inverted V. Another was an oval or circular hut on a framework of saplings, interlocked at the top, criss-crossed with other boughs, and covered with bark, branches, grass, or reeds. Some were waterproofed with clay or mud, or the materials were held down with stones. In Arnhem Land and the Cape York Peninsula, Aborigines made rectangular huts with four or more forked corner posts, supporting a framework of stripped saplings



Douglass Baglin

Cooking a kangaroo, the Aborigines first burned off the hair, then placed the carcass in a ground oven lined with stones. They covered the oven with bark and then with earth.

Douglass Baglin

Shelter was simple. In some areas the people built rectangular huts with four or more forked posts supporting a framework of stripped saplings covered with bark, with a bark roof.

covered with bark, and a bark roof on top. During the wet season, the men elevated these huts above the ground and kept a fire going underneath to discourage mosquitoes. When sandflies and mosquitoes were bad and the Aborigines had no stilted mosquito huts nearby, they slept or rested under cone-shaped mats.

In some areas, people used caves and rock shelters during the wet season or dug drains round their huts. The floor of a hut could be hollowed out and filled with soft grass or paperbark, and in northern areas mats were used. A fire was always kept alight inside. Even though Aborigines were physically hardy and strong, they disliked extreme cold, and spent as much time as they could round their fires. At night they slept so close to their fires that they sometimes rolled into the hot ashes in their sleep and burned themselves badly.

Each hut usually contained a family—one or more wives, the husband, and their small children. Youths and single men usually camped together to one side of the married men's huts.

Clothing. Aborigines usually went naked. They liked to have freedom of movement. Also, they had no need of clothing for most of the year. In winter in the south-east and south-west of the continent, they wore cloaks made of kangaroo, wallaby, or possum fur, or huddled over their fires. In heavy rain, they sought protection in a hut or rock shelter, put up a sheet of bark for protection, or crouched under a tree.

Men in some areas wore fur tassels or pearl shells as pubic coverings. Women also wore pubic coverings occasionally, and in western Arnhem Land women sometimes wore half skirts of plaited leaves from pandanus trees. On Groote Eylandt and on Melville and Bathurst islands, women carried sheets of bark so that men could not see them in public.

Members of both sexes decorated themselves with red and yellow *ochres* (coloured earths), or wore necklets or armbands of bunched feathers. They often rubbed animal fat over their bodies to make themselves attractive and also to protect themselves against cold. On ceremonial occasions they used a much wider range of decorations, with symbolic and mythological meanings.

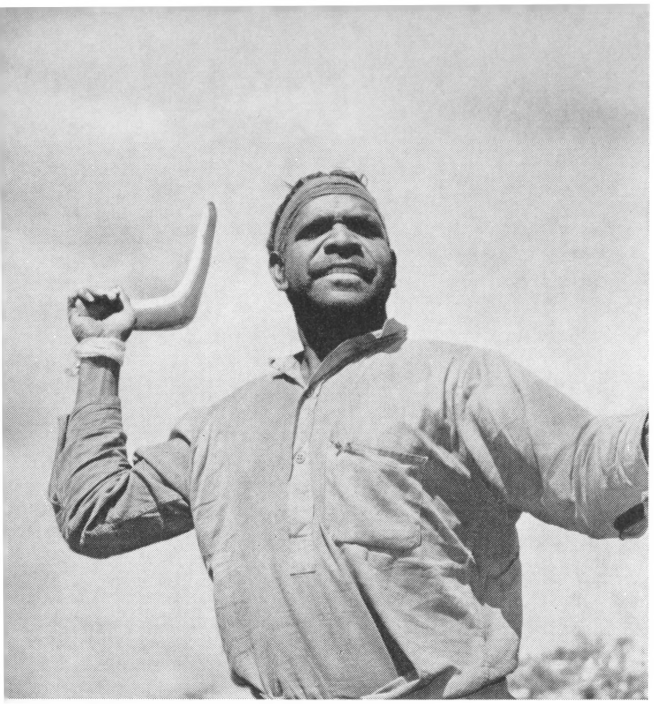
Life of the Children. Both boys and girls were highly valued in Aboriginal Australia. Aboriginal parents were, on the whole, extremely patient and kind to their children. They accepted a great deal from them in the way of bad behaviour but, when they did punish, they could be severe.

The responsibilities of adult life came earlier for girls than for boys. Little girls went out collecting food with their mothers and other women. Girls were considered to be adult after they had undergone special ceremonies about the age of 12.

Boys began quite early to practice with toy spears and throwers. They soon left their mother's company and tried to imitate the men. They were not usually allowed to go with a real hunting party until they were about 14. Boys were considered to be men after they had undergone special ceremonies.

Young children had no formal training. But from earliest childhood, they were shown and told what to do and what not to do, and they were expected to learn by example.

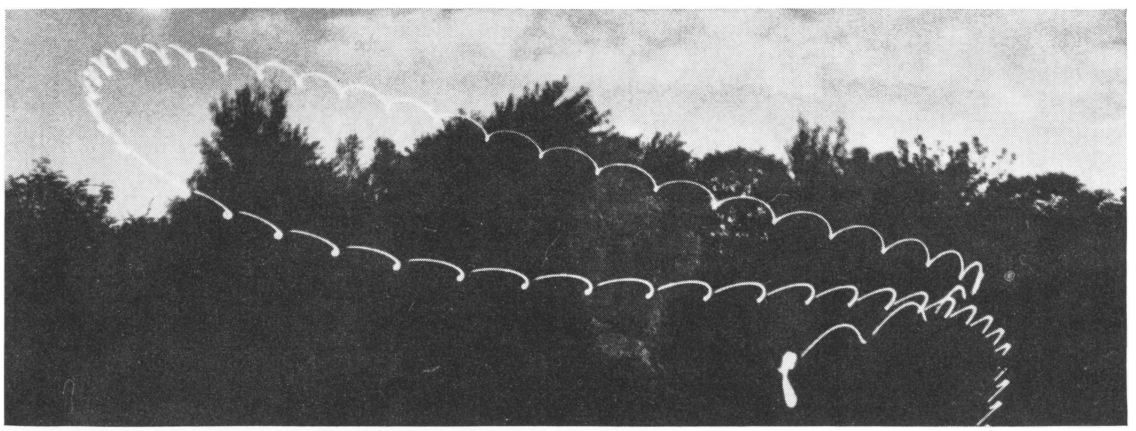
In most of their play, children imitated adult activities. A girl going out with her mother on a food collecting trip learned as she played. A boy using his toy weapons was playing and at the same time acquiring skills. Boys going out with their toy spears, sometimes with older boys, were learning by example what foods could be eaten and what could not. In playing *husband-and-wives* with make-believe camps and little camp fires, children copied what they knew of family relationships and married life. Sometimes they used sticks or wooden or clay dolls as babies. Children played at making *cat's-cradles* (string figures) or were taught to do so, and the figures they made were of adult situations. So were the sand drawings of desert children.



ABORIGINES / *Weapons and Tools*

The Shape of a Boomerang, with one end twisted upward and the other downward, caused it to return. An Aborigine threw his boomerang on the run. He held one end behind his head with the convex side to the left, swung it forward, and released it with a quick turn of his wrist.

The Path of a Boomerang, shown by a light on one tip, was horizontal at first. It then curved upward in a wide circle and came back, dropping to the ground beside the thrower.



Felix Hess

Despite their limited resources, the Aborigines made weapons and tools of outstanding craftsmanship and design. They also demonstrated a high degree of inventiveness. Some of their weapons and tools looked simple, but their appearance was deceptive. They were not crude or primitive. Not everyone could make a good spear or boomerang, and in some cases specialists in particular techniques became widely known within their own tribes.

Boomerangs were spread widely throughout the continent. Only a few areas did not have them. *Būmaring* was originally a Turuwal tribal word belonging to the people of George's River, near Sydney.

Returning boomerangs were invented by the Australian Aborigines, but they were made only in eastern and western Australia. They varied in shape, in length, in the breadth of the two arms, and in the angle between them. One side had to be *convex* (bulging outward) and the other one flat. The maker took a piece of thin, light wood, usually mulga or mangrove, and cut it to the right curved shape. He heated it over a fire to make it easy to bend, then twisted one end upward and the other end downward. This shape caused it to return. It spun round a point between the two arms. A man would throw it as he ran. He held it by one end behind his head with the other end curving to his left, swung it forward, then released it with a quick turn of his wrist. It flew horizontally at first and then curved upward in a wide circle and came back, dropping to the ground beside him. The Aborigines occasionally used returning boomerangs in hunting and sometimes in fighting, but mostly in competitive contests among men and older boys. Skilful contestants could throw them up to about 91 metres. Some men could make them complete one large circle and from two to five smaller ones.

Non-returning boomerangs were often larger. They were 60 to 90 centimetres long. They were useful for hunting larger animals such as kangaroos. In fighting, they could cause serious injuries. But they

also made good clapping sticks in singing. There were 18 or more local varieties of boomerang, and some in eastern Australia, 1·2 to 1·5 metres long, were used as clubs. The hooked boomerang was mainly used as a club, but it could also bring down birds in flight. Other boomerangs, especially made, were used only for ceremonial purposes.

Spears and Womeras. Spears were made in various lengths, from 1·5 to 3·7 metres, with various kinds of blades or points. Some were mainly for hunting, some for fishing, and some for fighting.

The Aborigines threw some spears by hand, reaching a distance of up to 64 metres. But, by using spearthrowers, they could throw a light, 1·8-metre reed spear up to 180 metres. An expert with a hunting spear could hit a standing target from 55 metres or a moving target from 23 metres.

Most hunting spears had a hollow or light wooden shaft. Some had plain wooden points hardened by heating in a fire. Others were barbed. Some had stone blades.

The *womera* (spearthrower), also spelled *woomerah* or *wommara,* was always carried with spears. It was like an artificial extension of a man's arm, to provide more power and accuracy. A man fitted the wooden or bone hook at one end of the womera into the hollow end of the spear. He held the two between his thumb and forefinger, with the thrower resting on his palm and the spear just above it and parallel to it. He shook the spear to obtain balance. Then he brought his arm forward from behind his shoulder until his forearm swung over and down, releasing the spear with the full force of his body behind it.

Other Weapons included clubs, knives, and shields. Some clubs had shafts, with thickened ends or rounded knobs. Some were bladed, like the end of a boomerang. Many were 60 to 90 centimetres long, but round or flattened hardwood fighting clubs, held in both hands, were up to 1·8 metres long. In Australian English, the smaller ones are sometimes called *nulla nullas* or *waddies,* but the various Aboriginal languages had many words for them.

The Aborigines used stone-bladed knives mainly for hunting and rarely for fighting. Shields were varied, too, although in some areas men always used clubs and spearthrowers instead, to ward off blows. Most shields were oval, but some of them were long and narrow and others broad.

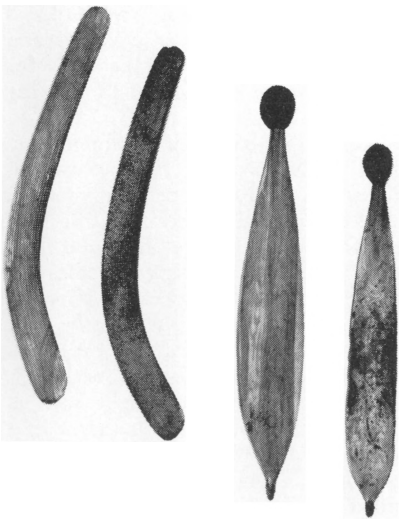
Tools and Utensils. To make these weapons, people needed tools. The most important among these tools was the stone axe. Stone hammers with handles and axes were all in use in various areas. They were used for many purposes, such as cutting down trees or shaping out canoes.

In addition, the Aborigines made fighting picks, saws, knives, chisels, blades, scraping and cutting tools, and *adzes*—hand tools used to cut wooden surfaces. Altogether they had more than 50 kinds of stone tools. They used round stones for grinding seeds and nuts, softening fibres, and crushing ochres. They shaped bones into fish hooks, spear barbs, netting needles, harpoon heads, knives, and borers.

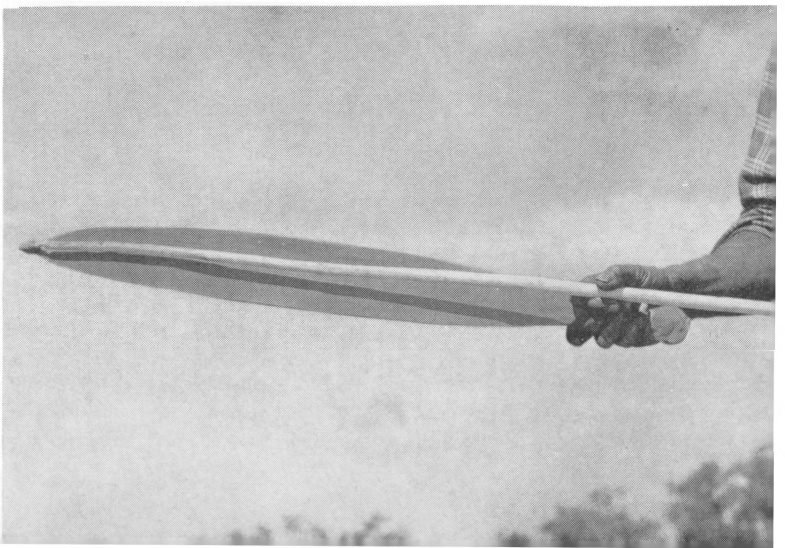
The Aborigines had few cooking utensils, because they did not heat water or boil their vegetables or meat. They stored water in wooden dishes and wax-smeared baskets, or in stringybark containers. Palm leaf and cabbage tree baskets were also plentiful in northern areas, along with natural containers such as shells. In south-eastern Australia, Aborigines sometimes used human skulls as drinking vessels. Desert people used waterbags of kangaroo skin.

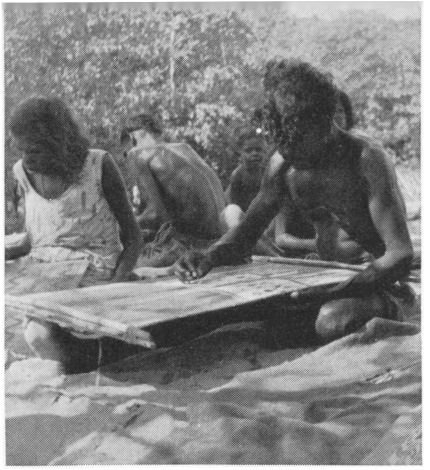
Aborigines made twine and cord from bark and root fibres, fur, and human hair. Basket-making was a highly developed craft and they made many kinds of bags and mats. Some were beautifully painted, especially the sacred *dilly bags* (long woven baskets) of the men of northern Australia.

A woman's wooden dish, carried under her arm or on her head, could serve as a baby's cradle, as a food-collecting container, or as a water-carrier. On a larger scale but equally important were canoes—the simple but effective bark variety, or rafts of bark or logs, as well as the larger sea-going dugout canoes that may have come from early contact with the Indonesians.



Aboriginal Weapons included boomerangs, *far left,* and spearthrowers, *left.* A man fitted the wooden or bone hook at the end of the spearthrower into the hollow end of the spear, *below,* to hurl the spear with more power.
Australian News and Information Bureau; Robin Smith, Photographic Library of Australia





Australian News; Cecil Holmes

Aboriginal Arts were expressive. The didjeridu was a popular instrument, with clapping sticks used for rhythm. Aborigines painted mainly on bark, above.

ABORIGINES / *Arts*

The Aborigines were particularly artistic people. This artistry found expression in many forms. It can be seen in their paintings on cave walls and on bark, and in their ground drawings, moulded figures in wax or clay, body painting, rock carvings, and wooden sculpture.

The main inspiration of all Aboriginal art was religious ideas expressed through myth and legend. But many paintings showed ordinary everyday events such as hunting and food collecting.

Painting and Carving. Cave and rock paintings are found over a wide area of Aboriginal Australia, but some are more outstanding than others. The number probably runs into tens of thousands. Some were done by Aboriginal people in the distant past. Others are more recent. Some sites are still used today. Typical of desert art are the works at Ayers Rock in central Australia, where walls are covered with figures of human beings, animals, and other creatures, along with circles and abstract geometric patterns. In the Kimberleys are the world-famous *Wandjina*—paintings of heroic beings with startling head-dresses representing lightning and rain, and with vertical stripes on their bodies. Western Arnhem Land, with hundreds of rock galleries of paintings, is one of the richest art fields in the world. Among these vivid paintings are two outstanding creations of tribal art: the beautifully drawn stick figures called *mimi,* and *X-ray paintings*—that is, paintings of human, animal, and fish figures that show the internal organs as well as their skeletons.

Painting on bark was traditionally limited to Arnhem Land and a few other areas, including Tasmania, Gippsland and central New South Wales, parts of south-eastern Australia, and probably the Kimberleys. Today it is more wide-spread, because Aborigines in other areas have taken up bark painting to sell to tourists.

Traditionally, Arnhem Land painting was in two distinctive styles. In the western part of the area, a painter usually left the background blank and concentrated on the main figures. In the east, he filled the whole sheet with complicated patterns. In the west, bark paintings were aids in telling stories, like illustrations in a book. Some recorded hunting achievements or historical events. Others showed sacred themes. Some were painted for magical purposes, such as obtaining a good catch of meat or fish, or for *sorcery* (black magic).

A painter stripped a sheet of stringybark from a tree. He held it over a fire to flatten it and then spread it carefully on the ground, with heavy stones on top to keep it from curling. He prepared red, yellow, black, and white *pigments* (colouring matter) of varying shades—from coloured earths, pipeclay, charcoal, and soot. He ground or rubbed the pigments on stones and mixed them with animal fat or water. For brushes, he used twigs or pieces of fibre or chewed stick ends, or neatly twisted fibre, feathers, and human hair.

But painting and carving did not end there. Aborigines excelled in painting complicated patterns on their bodies in pigments and in featherdown designs stuck on with blood. They made carved and painted human figures in north-eastern Arnhem Land and a large variety of sacred objects of wood and stone such as *tjurunga.* They used stone tools for *incising* (cutting into) stone or wood or for carving in the round.

Corroborees. This word has been commonly accepted by Australian-Europeans to refer to various forms of entertainment, including dancing, singing, and dramatic performances. It comes from the Port Jackson district, where John Hunter recorded it as *carib-berie* in 1790. But the Aboriginal names for such entertainments varied considerably. Corroborees were sometimes religious, but mostly they were held for social enjoyment—for the fun of it.

Ordinary ceremonies were informal occasions, times for relaxation. Some people might just go about their own business, while others gathered in a clearing to sing and dance, to entertain themselves, or to welcome visitors. They might stage an elaborate affair, with colourful body designs and head-

dresses and carefully made emblems. Usually, men and women danced separately. Some of the dances were about everyday events, such as hunting, or the behaviour of animals and birds, or comic sketches about ordinary people. Some of the songs were time-honoured and traditional. Others were composed for the occasion and very much up-to-date. Many ceremonies, dances, and songs were traded from one group to another, and gradually spread from tribe to tribe over wide areas.

Dances were usually quite simple in basic patterning, but some included complicated and graceful leg and hand movements rather like the steps in a European ballet. Most dances were accompanied by singing or music.

Music was both vital and complex. Aborigines excelled in harmony, rhythm, and melodic patterns. Some men, especially, were magnificent singers. Their superb voice control and dramatic singing impressed European listeners. As an accompaniment, the commonest instrument was a pair of clapping sticks. Two boomerangs were often used for this purpose. A hollow wooden log or gong was beaten in certain sacred ceremonies in Arnhem Land. Rattles were also used.

The *didjeridu* (drone pipe) was widespread throughout the north and into the Kimberleys. A skillful player could obtain a wide range of sound. A didjeridu was not usually played by itself. It provided a droning background for a songman with his clapping sticks. There were secret, sacred versions of the didjeridu, up to about 3 metres long, painted and decorated with feathers.

Myths and Legends. The sung poetry of the Aborigines covered all types of subjects, but much of it dealt with mythical themes. Many myths were not told as prose stories, or not only that way. The whole story was told through a series of songs, each complete in itself.

Some outstanding songmen knew hundreds of songs and could sing them without any prompting. Most of these men were religious leaders who had specialized in this kind of knowledge.

Myths and stories or legends were handed on over the generations. Sacred myths were often acted out in ceremonies. Usually, they were sung, with or without special dances.

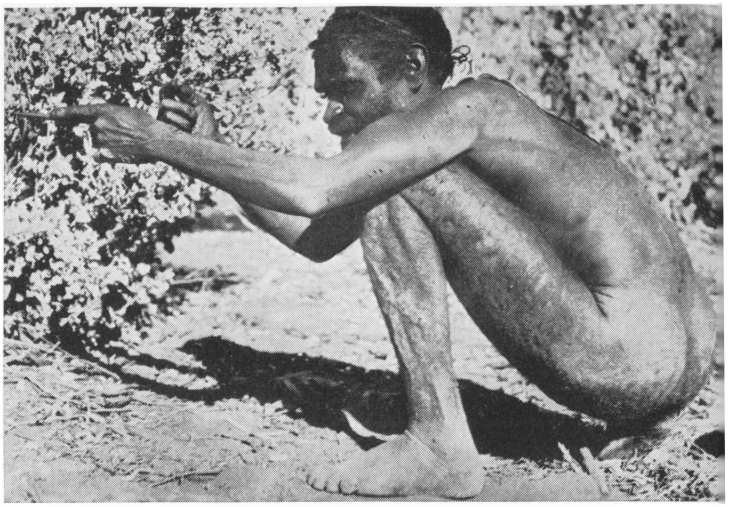
Many other stories were simply legends or tales —stories of how certain creatures became what they are today, stories of bad spirits, stories of love and adventure, stories of killings and of black magic. There were also children's stories. The time and place for telling these stories was around the camp fire at night. They were usually told for pleasure. But they could also be intended for instruction, or to demonstrate what would happen if a person did something wrong. A great story-teller did not rely solely on the spoken words, but made his talk live for his audience—like a dramatic performance.

But myths and legends were more than these things. They preserved the knowledge inherited by a particular tribe and the real spirit or essence of the culture.

Aboriginal Painting was one of their most expressive arts. They produced paintings with the simplest resources. They had only such materials as ochre and charcoal as pigments for their paints. Yet with their red, yellow, black, white, and brown colours they decorated carvings of birds such as brolgas, *right*, and created bark paintings, *below*, and rock paintings *below right*.

Cecil Holmes; Jeff Carter

Cecil Holmes



A. P. Elkin

ABORIGINES / *Religion*

Religious Rituals, *above,* were a major part of Aboriginal tradition. But they were separate from magic. Pointing the bone, *right,* was an example of black magic. Attaching a hair cord to the death bone and magically projecting its power caused the victim to die at some later time.

The Aborigines were a deeply religious people. This attitude found expression not only in myths and *rituals* (religious ceremonies) but in all aspects of social living.

Beliefs. An important aspect of religious belief was the *Dreaming* or *Dreamtime.* This term does not mean the same as an ordinary dream. Aborigines believed that the great creative and spirit beings were present at the beginning of things. These beings shaped the world as it is now and made everything, including people and their traditional way of life. After that, some of them went into the sky or into the ground, or merged into hills, rocks, or waterholes. But none of them actually died in the ordinary sense. In Aboriginal belief, they are just as much alive today as they were in the past, living on in the Dreaming.

Gods and Goddesses. The greatest of the spirit beings were in fact gods and goddesses. The fertility mothers called *the Great Mother* or just *the Old Woman,* such as the *Djanggau Sisters,* the *Kunapipi,* or the *Gadjeri,* were particularly important. Many of the characters who lived in the mythical beginning of time were partly men and partly something else. For example, the *Wadi Gudjara* (Two Men) of the Western Desert could change shape and be goannas as well as people. Actors re-enacted the lives and activities of the great spirit beings in special ceremonies called *historical rites.*

Totemism was a kind of religious symbolism connected with the Dreaming. A *totem* was the symbol of a social or religious group, or of a person. It could be an animal, plant, object, or some natural force, such as winds. In some areas, a person's totem was regarded as being of the same flesh as himself and he could not eat it. Men claiming a particular animal as their totem were responsible for performing special *increase rites* designed to increase its numbers.

Initiation. The usual entry into manhood was through *initiation rites*—ceremonies that formally *initiated* (admitted) boys into adult life. Among the physical operations were scarring a boy's body, knocking out one or two teeth, or, in many areas, circumcision (removing his foreskin). Special grounds were prepared for initiation, and the New South Wales *bora* ground is a good example.

Burial Customs varied from one tribe to another. In many regions, Aborigines buried their dead in the ground. In many others, they placed the dead body on a specially constructed platform or in a tree.

Life after Death. All Aborigines believed that there was some kind of afterlife, or afterworld, but details varied from one tribe to another. After someone died, mourners held burial and mourning rites. They gashed their heads and cried, chanting sacred songs. Then they usually burnt the dead person's belongings and shifted camp. Many mourners repeated the mourning rites about a year later. They believed that the spirit of the dead person went to a sacred water place or the Land of the Dead in some distant place or in the sky. In many tribes, the Aborigines believed that the spirit would be reborn, sometimes appearing first as though it were a totem.

Magic and Medicine Men. Aborigines believed in two forms of magic. These were *white* (good) and *black* (bad).

The people concerned with white magic were native doctors. They were mainly responsible for healing. They also provided magic for good hunting, making rain, inquiring into deaths, preventing harmful magic and misfortunes, and even, sometimes, for love. They were especially good at healing. They had a wide knowledge of medicinal plants and special treatments and could often cope with both physical and psychological disorders.

Sorcery was concerned with various forms of black or destructive magic. The best known form of black magic was *pointing the bone,* in which the sorcerer ritually projected the death bone's power into the victim and caused his death.

Rainmaking was especially important in desert regions. The use of pearlshell, usually associated with water, was perhaps the simplest form. A man simply bit the shell and spat out fragments to induce rain to fall, or sang a special spell over it.

Tribes. Before European settlement in Australia, there were probably about 500 tribes throughout the continent. The tribe was the largest social unit that a group of people recognized. Its members had religious and hunting rights over one stretch of country. These territories were generally much smaller in fertile areas than in desert areas. Tribal populations varied from 100 to 1,500, with the average tribe having between 500 and 600 members.

Members of a tribe shared a common language and common customs. They also had a collective name for themselves, or their neighbours had a special name for them. The meaning of such names varied, but usually they referred to some distinctive feature of the people or their country. Often, they could be translated as meaning *man* or *human being* in contrast to others.

But tribes were not politically important. There were no tribal chiefs. Religious leaders, or sometimes warriors famous for their courage in battle, presided over meetings. But there was no overall machinery of tribal government.

Local Bands. Tribes were divided into smaller groups called *bands* and *local descent groups.* The band was the main hunting and food-collecting group. Its members normally camped together, or not far apart. A band varied in size according to the seasons. It might be no larger than a couple of family groups, but at other times it could grow to a large-size camp of 100 or 150 persons or more. A band was the unit concerned with everyday affairs. The *local descent group* included the same people, but from a different point of view. It was the land-owning unit, and its members shared sacred places in the area.

Kinship. All the members of a tribe claimed some sort of *kinship* (relationship), although not all were close blood relatives. Being related to a particular person did not mean simply using the proper term for that person. It meant taking into account the kind of behaviour associated with that term. In every case, there were obligations and responsibilities of some kind. Some relatives had to be avoided, or spoken to from a distance, or treated with respect. But a person could tease or joke with certain other members of the family. Mothers-in-law, fathers-in-law, sisters, and *cross-cousins* (children of a brother and a sister) were important relatives in all kinship systems. There was nearly always some kind of avoidance between a man and any woman or girl he called mother-in-law.

Marriages were usually arranged on the basis of kinship. Husbands and wives were nearly always relatives. In many areas, people believed that the best kind of marriage was one between a man and the daughter of his mother's brother. But men quite often exchanged sisters, and sweethearts sometimes eloped together. Marriage was not just a union between two persons. It was regarded as a union between two families, and a matter of considerable interest to a wide range of relatives.

Most Aboriginal girls were married once they reached puberty. Their husbands might be youths a little older than themselves. More often they were mature men who already had one or two other wives. Most Aboriginal men probably had only one wife at a time, but many had two or three. The extra wives added to a man's prestige. They also provided more food for the family, more children, and more babysitters.

Communications. Aborigines generally kept to their own tribal territories. At the same time, they had some contact with their neighbours. Tribes met together for ceremonies or trade. Real communication in Aboriginal Australia was not just the exchange of goods between neighbouring tribes or their representatives. It rested on widespread trade, in which objects passed from one group to the next over great distances. Especially, it consisted of ceremonies and songs gradually spreading from one area to the next over a period of time.

Languages. There were probably 500 languages in use in Aboriginal Australia at the time of the first European settlement. In addition, members of the same tribe often spoke different dialects.

Messages. Aborigines had no form of writing. They passed messages by word of mouth. Messengers moved from one area of a tribe to another and into a neighbouring one, bearing messages about such matters as marriage arrangements, trade, ceremonial gatherings, illnesses, or deaths. A messenger might carry a message stick to serve as an aid to his memory. If he met people who did not understand his language, he used a system of finger and hand gestures.

Aborigines left signs in the bush showing where water could be found, where a death had occurred, or where members of a particular camp had gone. Smoke signals were common throughout Aboriginal Australia. They indicated the presence of visitors or the location of hunting parties and the animals they followed. They were also used to call people to a ceremony, to give a warning, and so on.

Trade involved a great variety of objects and spanned large stretches of the continent. For example, pearlshells from the Kimberleys, along with necklets and boomerangs, found their way to the Nullarbor Plain. Trade routes criss-crossed the whole of the continent, following known lines of water-holes.

Learning the Rules. Aborigines accepted customary or traditional rules as being in their best interests. They did not write down their rules as laws. Instead, they had appropriate myths that told why a certain rule existed and who first made it. Parents and other close relatives taught the rules informally. They rewarded a young child for good conduct, withheld rewards as a minor punishment, and occasionally used physical punishment for something serious. They gave young children many examples of good and bad behaviour from everyday life and from stories and songs. As a boy approached the age of puberty, responsibility for discipline passed from his family to the wider social group. During the boy's initiation, his guardians and other members of the group outlined the likely results of breaking the rules.

What the Rules Were. The rules clustered around two major overlapping subjects, religion and kinship. One important set of rules involved both of these subjects. It concerned the division of labour between men and women. Its rules governed economic activities such as how women should collect food, how men should hunt, what they should hunt, and how they should share it. Other rules dealt with maintaining trade, exchanging gifts, and how much women should participate in sacred ritual.

Learning kinship rules involved learning further sets of rules about the responsibilities associated with each category of relatives. Many of these sets of rules were extremely complex. Additional rules related to adultery, to personal possessions, and to *tabus* (forbidden things). Aboriginal rules forbade murder, injury, and theft. But the rules concentrated on not doing things that could lead to these acts, rather than on the acts themselves.

Obeying the Rules. On the whole, children growing up in this kind of society accepted traditional rules and stuck to them when they became adults. But the Aborigines recognized that arguments between people are inevitable. They took into account the difference between ideal statements of what the rules should be and the real facts of how the rules would work in actual situations. For example, the rules about which girl a man might marry included more than one possible bride. A young man and his family might choose a girl they liked who was not the first choice according to the rules—as long as she was included in the acceptable group. But if he insisted on choosing a girl who was considered non-marriageable, then the group would try to prevent the marriage or to punish him. The rules always provided some flexibility, as long as a person did not break a rule in a crucial area of behaviour such as special avoidance relationships or men's secret-sacred ritual.

Enforcing the Rules. Aborigines taught their children to accept certain forms of behaviour and belief as being right. They also included anti-social behaviour in some popular stories. By telling and listening to these stories, they provided an outlet for socially harmful or destructive emotions.

Aborigines applauded conduct they admired. On the other hand, they ridiculed someone who broke the rules. Or, if someone failed in a kinship obligation, he might find that people would not help him in time of need. Generally, they feared supernatural punishment if they broke a tabu or a sacred law. Fear of sorcery was even more powerful than fear of being injured or killed for breaking the rules.

Offences included breaking sacred law and offences against persons and property. The most serious types of offences were breaking sacred laws—that is, regulations, tabus, and codes of behaviour that were believed to have a supernatural basis. For example, novices were told never to reveal to uninitiated persons what they saw or heard in secret-sacred ritual. Women were warned not to break the strict rules regarding their exclusion from certain aspects of men's secret-sacred life.

Offences against property were not common. The question of land ownership did not arise. To the Aborigines, land was (and is) non-transferable, because it was held in trust by members of local descent groups. The same was also the case with ochre deposits or with special stone for working tools. Ordinary everyday implements or domestic items might be borrowed but would rarely be stolen. But offences against dogs could be serious.

Offences against persons had far-reaching effects. A woman who injured or neglected her child would be in trouble with her family and her husband's family. A couple who eloped would be in trouble with almost everyone. Murder or suspected murder could lead to feuding among large groups. The suspicion or threat of sorcery automatically caused trouble.

Enforcement Agents. The primary law-enforcement agent in Aboriginal Australia was the family, including the persons immediately concerned in any offence. In religious matters, ritual leaders decided what was to be done and took action themselves or delegated it to someone else. Their action was regarded as a group action, not a personal one.

In the case of offences against the person, punishments were handled by the immediate family or, in the case of elopement, by the families of those immediately involved. With murder or supposed sorcery, more people could be drawn into the affair and fighting between groups could follow.

There were two main trends in Aboriginal law enforcement. Where the matter was unlikely to spread, the injured person's family group could take action themselves. But, where the disturbance involved large numbers of people, as in murder or severe physical injury, religious leaders and headmen were likely to act. They might step across the bonds of kinship in an effort to control the situation.

Punishment and Settlement. For nearly all cases of breaking sacred law, the punishment was, traditionally, death. In some exceptions, compensation was accepted. In affairs within families, punishment varied from ridicule to spearing.

In central and southern Australia, grievances were often settled by formally spearing an offender in the thigh, especially in cases of elopement, but also to avenge an injury. A flow of blood was usually considered sufficient to appease anger or heal the breach. But mock fighting took another form in western Arnhem Land, where conventionally no blood should be drawn. The *magarada* of north-eastern Arnhem Land and the *maneiag* of western Arnhem Land were settlements by ordeal. The two opposing groups assembled on a cleared ground. They danced before one another and threw spears from which they had removed the blades or points. Finally, the offender or supposed offender ran the gauntlet of his accusers. This time, the spears had points, and the man was wounded, usually in the thigh. There are many parallels to this type of settlement in other parts of Aboriginal Australia.

Aborigines had no judicially-based institutions for maintaining law and order. There were informal 'councils' in some areas, made up of elders or men of importance. In general, they acted as mediators to try to keep the peace.

Almost all Aborigines have had to adjust to the fact that 12,000,000 non-Aborigines now share the continent with them. Some Aborigines today live as their ancestors did, emphasizing their Aboriginal customs, beliefs, and language. For them, traditional Aboriginal culture is not something of the past. It is the only way of life, not the old way of life. On the other hand, many Aborigines are more or less divorced from their traditional setting. They have become for practical purposes Australians rather than Aborigines. But most of the people are somewhere in between these extremes, neither traditional Aborigines nor assimilated Aborigines.

Aboriginal Reserves of one kind or another, small and large, still exist in almost all of the Australian states. The largest, those in central Australia and Arnhem Land, are the last strongholds of traditional Aboriginal life. Most of the Aborigines in these areas live on so-called "fringe" reserve settlements established by government and mission bodies. In Arnhem Land, the main settlements are at Oenpelli, Goulburn Island, Maningrida, Milingimbi, Elcho Island, Yirrkalla, Groote Eylandt, Rose River, and the Roper River and Bamyili. Reserves in inland Australia include Balgo, Jigalong, Warburton Range, Docker, Papunya, Amata, Yuendumu, and Ernabella.

Some of these reserves are dangerously close to areas being developed for mining. For example, Yirrkalla is near the bauxite mines at Gove, in the Northern Territory, and its people face the complete loss of their traditional way of life. But, with federal aid, people in some northern reserves are developing their own industries—fishing, timber-milling, gardening, and pastoral activities. They might eventually build strong, self-supporting Aboriginal communities in these areas.

In the Kimberleys and in the north-west, small Aboriginal communities are part of such townships as Port Hedland and Hall's Creek. But the Aborigines do not share the same standard of living as the more prosperous European townspeople.

There is a steady drift to the cities in New South Wales, South Australia, and Western Australia. People of Aboriginal descent are moving gradually away from fringe reserves and country towns—away from the squalor and the limited opportunities there.

There are two contrasting views on the future of the reserves. According to one view, the Aborigines should be encouraged to change their hunting and food-collecting customs as quickly as possible. When the changes have taken place, the reserves should be opened up for the inevitable economic exploitation of natural resources. In fact, large areas have already been taken from some main reserves, especially for mining, without any reference to Aboriginal wishes in the matter.

According to the opposite view, all reserve land should become, legally, Aboriginal-owned land. The Gove land dispute is one move in this direction. The South Australian Lands Trust Act of 1966 is another. There, reserves are vested in a trust controlled by Aborigines, who have the right to sell, lease, mortgage, or develop their lands. In the Northern Territory, royalties at double the normal rate are levied on minerals mined on Aboriginal reserves in the Territory. This money goes to an Aboriginal Benefits Trust Fund.

Welfare Policy. The federal government overviews state policies on people of Aboriginal descent, but the states still guard their right to handle their own regulations.

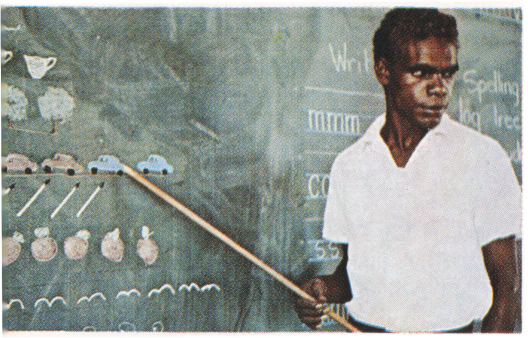
The main welfare agents are those sponsored by the federal and state governments and those sponsored by the missions. All of them are focused, more or less, on social, economic, and political advancement. They have all shared the general assumption that all people of Aboriginal descent would eventually be *assimilated*. The word *assimilation* has been interpreted in various ways, but in practice it usually means training the Aborigines to enable them to take their place within the wider Australian system. It has emphasized equality with other Australians, the same range of choices, the same freedom of action and movement, and the same responsibilities.

Assimilation actually means rapid and radical change, and the disappearance of most aspects of traditional life. Recognizing this great loss, many people, especially articulate people of Aboriginal descent, now stress *integration,* which does not mean complete absorption.

Welfare Work. People of Aboriginal descent now receive social service benefits on the same basis as other Australians. They can benefit from a wide range of welfare activities, in such areas as health, housing, education, and employment. More and more Aborigines are entering secondary and high schools, and some are going on to tertiary education. But too few welfare personnel are trained for their tasks.

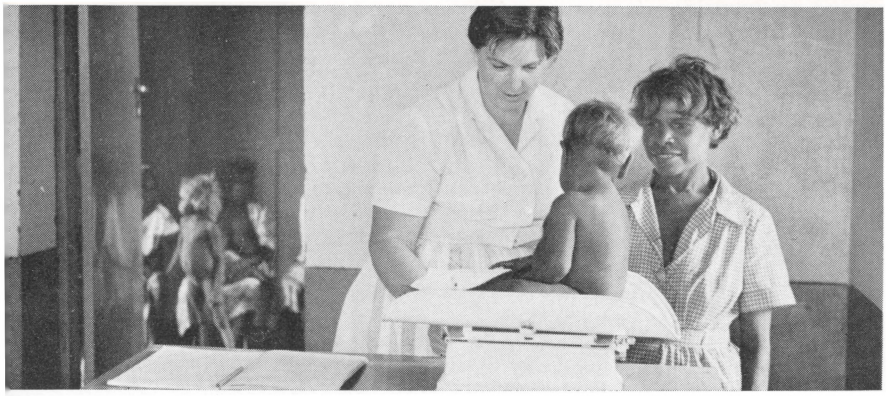
Welfare Problems are complex for those who retain something of their traditional approach to life. The immediate issue is one of economics. These people need training for better jobs and a wider choice of jobs. Educational facilities are much better than they were, but employment opportunities have not opened up for the better-educated Aborigines. Special projects are needed in which Aborigines can be employed.

Various mining ventures in northern Australia have been set up on land regarded by the Aborigines as theirs. But these new ventures have not, at the same time, opened the door to Aboriginal employment. Many Aborigines regard land rights as critical, and as the only way they can be assured of some control over their economic future. Leasehold land, they argue, does not serve that purpose. In many parts of the north, and in the western central desert, royalties from mining on what they regard as their own land are beyond their control. The money is spent mainly outside their territory. In addition, some small Aboriginal communities have grown up on reserves and in other areas. Many of these communities include people from various groups, instead of being based on tribal organiza-



Jeff Carter; Douglass Baglin

Education for Aboriginal children is provided throughout the country. The Santa Theresa mission school, *above*, is not far from Alice Springs. In addition, a growing number of trained Aboriginal teachers help them to grasp new symbols and new concepts of life, *above left*.



David Moore

Medical Aid is provided by the federal and state governments and by Church missions. They maintain free child clinics to help and advise Aborigines, *left*.

tions. Local councils are developing and increasingly want a say in their own affairs.

Housing is a less pressing problem than it was in the past, although it is still important. For food, clothing, and other amenities, most Aborigines must depend on economic resources far below the standard of most Australians.

Aborigines who follow traditional ways of life continue to be vulnerable to introduced diseases. Malnutrition is marked in some regions. In part, the causes can be traced to changes in food patterns and to the fact that many parents do not understand the child-health problems that arise outside the bush.

Material welfare is important, but it is not everything. Many Aborigines feel that more attention should be paid to their place in the wider society, and to their emotional security. In particular, they believe that the right to make some of their own decisions is becoming a pressing need.

Two major problems face people of Aboriginal descent who have lost most or all of their traditions and who live in the cities, towns, and farming areas of southern and south-eastern Australia. First, they need higher education and skills to enable them to take advantage of existing opportunities. Second, they need a form of identification that will set them firmly within Australian society, but that will also mark them off from others as being unique in certain ways. The recent upsurge in Aboriginality gives them pride in their Aboriginal heritage, encouraging initiative and emotional stability. These two problems—initiative and stability—have been consistently underplayed over the years. But most Aborigines have been at a disadvantage in most of their contacts with other Australians. As a result, they have tended to lose the drive to succeed and the sense of security most people need.

Discrimination, restricted job opportunities, and low educational performance, among other things, have forced them into the lowest social and economic level of Australian society. Conditions began changing only about 1950, and their economic position has improved. The variety of jobs available to them is linked with better education. Some now have a wider choice of jobs, and many more of the younger generation will have still wider choices.

Some Aborigines are moving into the suburbs, on their own initiative or with outside help. But the majority remain within the poorest sections of the cities. In country areas, the situation is more depressed. The fringe settlements and their health hazards are only now being dealt with. The difficulty of finding employment in the country has increased the drift to the cities. In both city and country areas, broken homes, child neglect, drunkenness and

Jeff Carter

Housing, such as these new homes built for Aboriginal workers at Haast Bluff in the Northern Territory, helps to improve living conditions for many Aborigines.

prostitution, school absenteeism, and general despondency are all present in some degree. Many Aborigines are moving and have moved out of this kind of atmosphere. But many others find it nearly impossible to do so.

Civil Rights. Aborigines are Australian citizens. They have access to social service benefits. They can vote in federal elections. They must be counted in censuses. And the federal government can make laws for them. Almost as important, as a matter of principle and prestige, Aborigines now have the right to drink. As citizens, Aborigines are also subject to decisions on basic wages. The Commonwealth Arbitration Commission has ruled that the full pastoral award wage applies in the Northern Territory, and the states now follow the same policy. This ruling caused some initial hardships, because some station managers laid off their Aboriginal stockmen rather than pay them full award wages.

Aboriginal Rights Movement. Most discriminatory laws have been repealed, but much remains to protest about. Discrimination and prejudice are not as obvious as they were a few years ago, but they are still a force to be reckoned with. In some small country towns, especially, part Aborigines have become second-class citizens. And in some areas where Aborigines predominate, no provision is made for their representation on the local shire council. Many pastoralists sacked their Aboriginal stockmen and farm hands rather than pay them the basic wage. As a result, some Aborigines were forced to leave the country they have always regarded as their own. The unhappy truth is that Aborigines are not sharing in the economic development of the country.

Today's problems revolve around such things as land ownership, sharing in economic advancement, better educational opportunities, provision of a wider range of choices in employment (along with the acquisition of skills), and political action. In the cities and immediate outback areas, people of Aboriginal descent are turning to voluntary service organizations, such as OPAL in Queensland, the Foundation for Aboriginal Affairs in Sydney, the Aborigines' Advancement League in Victoria, the Aboriginal Education Foundation in South Australia, and the Aboriginal Advancement Council of Western Australia. Other organizations, such as Abschol, have also worked on these problems.

Some of these are political action bodies, deeply concerned with general problems of Aboriginal advancement. Over and above state aid is help from the Commonwealth Office of Aboriginal Affairs, now financing a wide range of projects.

Summing up, two major issues critically concern almost all people of Aboriginal descent today. One is the question of integration, rather than assimilation. The other is the concept of Aboriginality—the attempt to seek an Aboriginal identity instead of some other kind. Most people of Aboriginal descent see themselves as different from other Australians. They want to have access to all that Australian society has to offer. At the same time, they would like to see themselves in a privileged position as Aboriginal Australians. Few of them in the south have any direct knowledge of traditional Aboriginal life, and fewer still would willingly choose such a life. But the idea of an Aboriginal life appeals strongly to them, because they seek emotional stability from a growing pride in their Aboriginal heritage.

The Future. Aborigines today are becoming politically more alert. Many in the north and centre are still retaining much of their traditional way of life and want to keep what they can of their own ways. Others, most of them only partly of Aboriginal descent, have had no direct contact with traditional Aboriginal society and culture. They live, for better or worse, in an ordinary Australian society—disadvantaged certainly, but in ordinary Australian and not in Aboriginal terms. But they want to use the idea of Aboriginal life to bolster their own concept of Aboriginality.

To preserve what remains of traditional Aboriginal culture would be an impossible task. Too much is changing, too rapidly, to meet new conditions. Many Aborigines have learned new values and felt new needs. Traditional values have to be bent to suit these new circumstances or others have to be substituted. This process of adapting older values or finding new ones is a continuing one.

Aborigines who still live in traditional ways cannot imagine the idea that their culture may die out, despite the evidence around them. But what aspects can and should be retained? Who decides? An outside agent, such as an anthropologist or welfare officer? Or an Aboriginal himself? And which Aboriginal? The best thing, of course, is to educate Aborigines to look at their own society objectively, so that they can make up their own minds. But this is a long process. What usually happens is nothing, or at best an attempt to encourage certain aspects of Aboriginal life—the ones that do not intrude too obviously on the fields of education and economics, or

development of leadership and political awareness. Moreover, what Aborigines themselves believe to be the important features of their life may not coincide with views held by other Australians. In either case, the transformation of such aspects into a new situation is not easy.

Ideally, there are three interconnected areas of Aboriginal traditional life that should and could be retained. The first is local adaptations to the environment, linked with deep knowledge of all within it. The second concerns social relations—approaches to the family and to kin, in terms of responsibilities and cooperation. The third concerns the arts.

The arts traditionally expressed religious ideas. But only the actual arts themselves have received special attention. They have been supported through the tourist market, which tends to isolate them from their own setting.

Counterbalancing this commercialization is the encouragement of the arts by organizations such as the Advisory Committee on Aboriginal Arts, the Australian Council for the Arts, and the Northern Territory Theatre Foundation. Their interests focus on professionalization and the development of arts and crafts, which could both bring personal satisfaction and earn money. Aborigines who still possess something of their traditional background have a lot to contribute here.

The Australian Institute of Aboriginal Studies, university departments of anthropology, and museums are recording as much as possible of traditional life, for future generations of Australians, including Aborigines. They also preserve Aboriginal sites, such as the rock galleries of painting, carving, and incising.

The need to preserve traditional Aboriginal culture rests on two counts. First, it is significant for the people themselves. Second, it is important because it adds to our understanding of human beings generally and Aborigines specifically. For themselves, retention of their arts and, if possible, their religious perspectives is essential for self-respect, pride, and emotional stability. By retaining their arts, they contribute both to the quality of Australian life and to an appreciation of other ways of looking at things. Their influence on the Australian arts could be considerable.

Aborigines are becoming more sophisticated in European terms. While ideally they should retain their own identity, they will inevitably move more into different occupations, mixing equally with other Australians. Traditional Aboriginal life can provide a new spirit, a new sense of belonging and direction, to the growing number of persons of Aboriginal descent who no longer have such traditional ties.

In a more abstract way, Australians generally are building up a national image. Although the majority are not of Aboriginal descent, they have a concern for Australia as a country and for the people they supplanted. This image can be strengthened through an understanding of Aboriginal life, and the realization that Aborigines have a significant part to play in the Australia of the future.

ABORIGINES / *History*

Aborigines have lived in Australia for at least 30,000 years. Historians think that they came from south-eastern Asia. The Aborigines migrated slowly southward from place to place at various times as their numbers grew. Crossing the land and using rafts or canoes to cross the water, they moved among the islands now known as Indonesia and New Guinea. Even with the help of good winds and sea currents, their journey would not have been easy. At last they reached Australia. Their main landing points seem to have been in and around Cape York, Arnhem Land, and the northern Kimberleys.

Origins. *Anthropologists* (scientists who study man) classify the Australian Aborigines as *Australoids,* one of the major races of man. Present evidence suggests that the descent of some elements in Australian Aboriginal skeletons may be traced back to an early type of man who lived in Java about a million years ago (see JAVA MAN in the main volumes). There are also similarities between the skulls of more recent prehistoric man found in Java and the oldest Aboriginal skulls found in Australia. In addition, a few of the more recent Aboriginal stone-worked tools show similarities with tools from the region north of Australia.

The fact that the Aborigines once lived on the mainland and islands of south-eastern Asia does not mean that they are the same as any of the peoples living there today. They migrated to the Australian continent at an early period. Some physical similarities have been pointed out between Aborigines and such peoples as the Veddahs of Ceylon, the pre-Dravidians of India, and the Sakai of Malaysia. But these similarities need not mean that any direct link exists between them. See RACES OF MAN in the main volumes.

Prehistory. The first people to settle in Australia arrived there probably 30,000 or even more years ago. The Tasmanian Aborigines were established in their island for over 8,000 years. They were possibly very early settlers in Australia who moved south as other migrants came. The Tasmanian Aborigines used spears and some stone tools similar to the ones used by the mainland Aborigines. But they did not make use of spearthrowers, boomerangs, shields, axes, or adzes. Also, they had no dogs. Anthropologists are still uncertain about the racial relationship between the Tasmanian Aborigines and other peoples. See TASMANIAN ABORIGINES in the other Australasian volume.

On the mainland, *archaeologists* (people who study early history) have made some outstanding finds. They have found hundreds of sites and have dug up many of them and collected vast amounts of stone tools. Some of these sites, such as those at Kenniff in Queensland, Keilor in Victoria, and Oenpelli in the Northern Territory, have material that is from 16,000 to 30,000 years old. Koonalda cave in western South Australia was occupied at least 19,000 and possibly 30,000 years ago. A skull found at Keilor has been estimated to be between 8,000 and 15,000 years old, and people lived there at

least 18,000 years ago. People also lived at the Lake Menindee site from 16,000 to 24,000 years ago. The Talgai skull from the Darling Downs, Queensland, is about 12,000 years old.

The oldest firmly-dated specimens are from the south of the continent. Archaeologists expect that other northern specimens, when they are found, will prove to be even older.

Archaeologists have not yet worked out details of the order in which the Aborigines developed various stone tools. They call the period from about 6,000 years ago until about 200 years ago the *inventive phase* because of the skill shown by workers in making a variety of stone tools. But the material is not easy to arrange in groups. Axes with ground edges date from about 20,000 years ago. The earliest backed blades date from between 3,000 and 5,000 years ago. The period covering the last few hundred years is called the *adaptive phase*.

Indonesian Influence. Before the coming of Europeans, Indonesian traders sailed to the northern coast of Australia. Their visits probably began as far back as the A.D. 1400s. The Aborigines apparently traded with these visitors and gradually adapted some aspects of their culture. Some signs of Indonesian influence are dugout canoes; iron blades, spears, and knives; long hollow wooden tobacco-pipes; some songs and burial ceremonies; and some carved figures. But contact with the Indonesians did not seriously change the way of life of the Aborigines, even where the contact was prolonged.

The Coming of the White Man in 1788 changed Aboriginal life enormously. The European settlers showed little understanding of Aborigines as persons, ignored their problems, and had no sympathy for their way of living. In the south, where most Europeans settled, the Aborigines lost their independence immediately. They became drifters around the developing towns. Many of them died from disease, lack of proper food, bad treatment, and alcohol. Within a few years, many once-powerful tribes died out. The Tasmanian Aborigines, some of them hunted down like animals, died out completely. But other groups also suffered.

Some mixing took place between Europeans and Aborigines. As a result, part Aborigines began to appear. As farmers spread into country and outback areas, many conflicts arose between Aborigines and settlers. After a number of large-scale killings, vast areas lost their Aboriginal inhabitants. Territories which they owned and over which they hunted were lost to them. Many of them eventually became workers and dependents on farms.

But other areas remained more or less undisturbed until recent years. Even today some traditional life still remains, in the inhospitable and protected areas where Europeans did not settle, such as parts of Arnhem Land, the southern Kimberleys, and the Western Desert.

At first, the official government view was that Aborigines were British subjects, who should be well treated, educated, and converted to Christianity. But this policy did not coincide with the views and the wishes of most of the settlers. After clashes with the Aborigines, colonial governments often tried to pacify them. But settlers took matters into their own hands and sent out expeditions to punish them or to force them to move away.

Throughout this period, the idea of protecting the Aborigines grew. Between 1860 and 1911, all the states drew up policies along these lines. Probably the major result of these policies was the creation of reserves. There was a general feeling that the Aborigines were dying out, and that the only thing to do was to ease their poverty and make their passing as comfortable as possible.

Throughout Australia, except where they were still sheltered by their own traditions, Aborigines lived in extreme poverty, without much hope. They had few educational opportunities. When they were employed, they worked for rations or low wages.

Increased Understanding. Public attitudes towards the Aborigines began to change gradually during the 1930s. Active, rather than passive, policies developed through the efforts of missionaries, anthropologists, and others. Between 1934 and 1939, some states changed their Aboriginal acts to take problems of welfare into account. By the end of 1933, the various governments generally accepted that Aborigines had a future. They also recognized that, if policies were to be successful, they must be based on knowledge of Aboriginal life.

The development of a positive policy for Aborigines coincided with the growth of anthropology. A department of anthropology was established in 1926 at the University of Sydney. As a result of representations based on research, the governments began in the 1930s to form new policies for Aborigines, concerned with their conditions and their welfare. Things moved very slowly. But from 1940 onward, these policies were gradually introduced. They had to do with social services, votes, improved education, training in skills, better employment conditions, and citizenship.

The policy of *assimilation* was applied from 1948 on. It meant, basically, that Aborigines were to be part of Australian economic, political, and social life. But it had a tendency to force them to become like Europeans and to discard what traditional life remained. This policy was modified in the 1960s to allow freedom of choice in such matters.

In 1967, the Australian voters approved a change in the constitution to permit Aborigines to be counted in the federal census and to allow the federal government to pass laws affecting people of Aboriginal descent. As a result, a Commonwealth Office of Aboriginal Affairs was set up with a minister-in-charge. In 1968, a pastoral award came into force, to provide basic wages for skilled workers.

Since that time, a number of projects have been developing. But, even before that, there had been an upsurge of what can be called *Aboriginality*—an emphasis on being Aboriginal. This movement has been particularly noticeable among people of Aboriginal descent living in the southern cities. It is an attempt to express their common descent and identity along with a pride in their heritage, and also to establish unity among them as Aborigines.

ABORIGINES / *Study Aids*

Related Articles in WORLD BOOK include:

MAIN VOLUMES

Boomerang
Races of Man

AUSTRALASIAN VOLUMES

Aranda
Arnhem Land
Australoids
Bark Painting
Bates, Daisy
Bennelong
Blacktrackers
Blair, Harold
Bull Roarer
Didjeridu
Jacky Jacky
Legends
Myall Creek Murders
Namatjira, Albert
Noble, James
Northern Territory
Perkins, Charles
Pointing the Bone
Rose, Lionel
Sands, Dave
Talgai Skull
Tasmanian Aborigines
Ubar

Outline of this article is as follows:

I. **Ways of Life**
- A. Finding Food
- B. Hunting
- C. Fishing
- D. Food Collecting
- E. Cooking
- F. Providing Fire
- G. Finding Water
- H. Providing Shelter
- I. Clothing
- J. Life of the Children

II. **Weapons and Tools**
- A. Boomerangs
- B. Spears and Womeras
- C. Other Weapons
- D. Tools and Utensils

III. **Arts**
- A. Painting and Carving
- B. Corroborees
- C. Dances
- D. Music
- E. Myths and Legends

IV. **Religion**
- A. Beliefs
- B. Gods and Goddesses
- C. Totemism
- D. Initiation
- E. Burial Customs
- F. Life after Death
- G. Magic and Medicine Men

V. **Tribal Organization**
- A. Tribes
- B. Local Bands
- C. Kinship
- D. Marriages
- E. Communications
- F. Languages
- G. Messages
- H. Trade
- I. Learning the Rules
- J. What the Rules Were
- K. Obeying the Rules
- L. Enforcing the Rules
- M. Offences
- N. Enforcement Agents
- O. Punishment and Settlement

VI. **Aborigines Today**
- A. Aboriginal Reserves
- B. Welfare Policy
- C. Welfare Work
- D. Welfare Problems
- E. Civil Rights
- F. Aboriginal Rights Movements
- G. The Future

VII. **History**

Books to Read about the Aborigines include:

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Berndt, R. M. and C. H. *The First Australians.* Walkabout Pocketbooks, 1969.

Chauncy, Nan. *Mathinna's People.* Oxford University Press, 1967.

Elkin, A. P. *The Australian Aborigines: How To Understand Them.* Angus and Robertson, 1964.

Lockwood, Douglas. *I, the Aboriginal.* Rigby, 1973.

Mountford, C. P., and Roberts, A. *The Dawn of Time.* Rigby, 1974.

Mulvaney, D. J., and Colson, J., eds. *Aboriginal Man and Environment in Australia.* Australian National University Press, 1971.

Poignant, A. *Bush Walkabout.* Angus and Robertson, 1973.

Reed, A. W. *How the Aborigines Lived.* Reed, 1972.

Wallace, P. and N. *Children of the Desert.* Nelson, 1973.

ABU BAKAR, SULTAN (1834-1895), ruled the state of Johor in Malaya for 33 years, from 1862 until his death. He was an able administrator and a shrewd businessman. He encouraged Chinese immigrants to settle in Johor, developed agricultural plantations, and established new land laws and new customs posts. Abu Bakar also helped to plan Johor Baharu, the capital city of the state.

He was born in Johor, and inherited the title of *Temenggong* (Chief Minister) of Johor when his father died in 1862. He adopted the title of *Sultan* in 1885, when he signed an alliance with Britain.

ACACIA. See ACACIA in the main volumes.

ACADEMY OF SCIENCE promotes scientific knowledge and research in Australia. The academy also maintains scientific standards and recognizes outstanding contributions to the advancement of science throughout the country. No more than six eminent scientists can be elected as fellows each year. Fellowship in the academy is one of the highest achievements for Australian scientists. Its official title is the AUSTRALIAN ACADEMY OF SCIENCE. It has an attractive circular conference centre in Canberra.

ACCREDITING is a system of granting a student a pass in an examination without requiring him to sit it. The examining authorities *accredit* him with a pass on the recommendation of his teachers.

Accrediting plays an important part in the educational system of New Zealand. Many secondary schools may accredit pupils for the University Entrance Examination on recommendation of the school principal. Pupils not recommended for accrediting, or who come from small schools that may not accredit, must sit the examination. Most New Zealand secondary schools also accredit pupils in the upper sixth form for the Higher School Certificate.

In Australia, accrediting is important only in Victoria. Some government and non-government schools in the state are allowed to accredit their pupils with passes in the Intermediate and Leaving Certificates on the basis of examinations that the schools themselves set.

ACEH. See SUMATRA in the other Australasian volume.

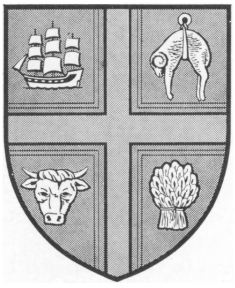
ACHILLES was one of three Royal Navy cruisers that fought the German pocket battleship *Graf Spee* in 1939, in an engagement known as the Battle of the River Plate. The *Achilles,* manned largely by New Zealanders, and the cruisers *Ajax* and *Exeter,* damaged the *Graf Spee* and forced it to head for Montevideo, in Uruguay. Four days later, the *Graf Spee* left Montevideo and headed down the River Plate towards the waiting cruisers. But the Germans scuttled their ship before it reached the cruisers.

In the late 1930s, the *Achilles* was serving on loan to the New Zealand Division of the Royal Navy. But, when World War II began, the New Zealand government placed the ship at the disposal of the British government. In 1948, the British government transferred *Achilles* to the Indian Navy, where it was renamed the *Delhi.*

ACTU (AUSTRALIAN COUNCIL OF TRADE UNIONS). See TRADE UNIONS (Union Organization) in the other Australasian volume.

Photographic Library of Australia

Victoria Square, with its attractive fountain, is named after Queen Victoria. The square is located in the middle of Adelaide's central city area.



Adelaide

ADELAIDE (pop. 809,466), the capital and major port of South Australia, lies on the banks of the picturesque River Torrens. Most people live in the many suburbs around the city centre. Of the total population, only 16,331 people live in the central city area. The metropolitan area extends for 64 kilometres (40 miles) along the Adelaide Plains.

Adelaide has one of the fastest-growing economies of any city in Australia. At its present rate of growth, Adelaide will probably have a million people by 1980. With its major port and market facilities, Adelaide is the state's administrative, commercial, and industrial centre.

Colonel William Light chose the site for the city in 1836. He had instructions to lay out the city with streets of ample width and to make "reserves for squares, public walks, and open spaces".

Location, Size, and Description

Adelaide lies on a plain that is bounded on the west by Gulf St. Vincent and on the east by the Mount Lofty Ranges. The city centre lies on both sides of the River Torrens, and is traditionally divided into two parts—North Adelaide and Adelaide. Light laid out the northern area in the form of rectangles. He laid out the southern part in the form of a square bounded by North, South, East, and West terraces. Each of these four terraces is 1·6 kilometres (1 mile) long. A large square in the middle of this central area is named after Queen Victoria. Four smaller squares bear the names of Light, Hindmarsh, Hurtle, and Whitmore.

The largest suburbs of Adelaide are Burnside, Enfield, Marion, Mitcham, Port Adelaide, West Torrens, and Woodville. The city has two port areas —the "inner" harbour and the "outer" harbour of Port Adelaide.

Adelaide has warm, dry summers and cool, moist winters. Its climate is tempered by Gulf St. Vincent and influenced by the Mount Lofty Ranges. Its average annual rainfall is 533 millimetres (21 inches). February, the hottest month, has an average temperature of 23° C (74° F). July, the coldest month, has an average temperature of 12° C (53° F).

The People and Their Work

More than a fifth of the people living in Adelaide were born in Europe, mainly in Britain, the Republic of Ireland, Italy, Germany, The Netherlands, and Greece. Many of these people settled in South Australia after World War II. They have had a great effect on social, economic, and cultural life.

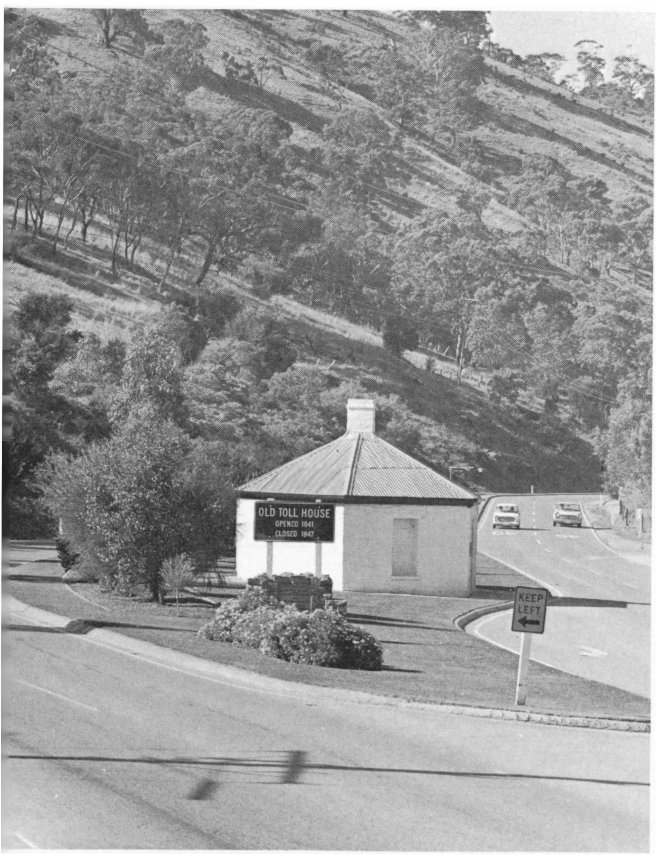
Industry. Most of Adelaide's industrial areas are in the inner suburbs, to the west of the city along the North and South roads, and near the outer areas of Elizabeth and Salisbury. New types of industries, such as metalworking, heavy and electrical engineering, and motor industries, give employment to thousands of men and women. For example, factories at Woodville, Elizabeth, and Tonsley Park employ more than 13,500 workers in the motor industry. Several thousand more manufacture motor accessories. Other important industries include the manufacture of tubes and pipes at Kilburn, and of household appliances at Keswick, Woodville, Dudley Park,

and Glenelg. These factories are the main suppliers of tubes and household appliances for the whole of the Australian market.

Port Facilities. The South Australian Harbours Board controls the development of port facilities at Port Adelaide and Outer Harbour. Both ports have adequate wharf facilities for large vessels. The Port River, a channel 10 metres (33 feet) deep, connects the two harbours. Town planners hope to reclaim dunes and swamp land along the Port River for housing, and to develop the east side for wharves and industrial sites. At Hallet's Cove, south of Adelaide, an oil refinery uses the deep water off shore for a port, called *Port Stanvac*.

Most of the cargo handled at Port Adelaide and Outer Harbour consists of imports from overseas and other states. Imports from overseas are mainly oil, iron and steel, timber, and motor vehicles. Imports from other states include coal, oil, and iron and steel. Exports from Port Adelaide consist mainly of flour, wool, wheat, barley, fruit, soda ash, and salt.

Storage and Market Facilities. Many warehouses are available in or near Port Adelaide for grain, wool, and other storage. The central city area has a fish market on Wright Street and a fruit and vegetable market on East Terrace. Farmers bring their fresh green and salad vegetables to market by road from the Torrens Valley, and from the Piccadilly Valley in the Adelaide Hills. Peas, tomatoes, and potatoes grow in the new market garden areas north of the city, and in many of the valleys in the Mount Lofty Ranges. But the Barossa Valley, north of Adelaide, and the areas along the Murray River now supply most of the city's fruit and vegetables. Much of Adelaide's milk supply comes from farms in the Adelaide Hills and the plains near Murray Bridge.



South Australian Govt. Tourist Bureau

The Old Toll House, unused since 1847, still stands at Glen Osmond, near Adelaide. In many parts of Australia, tolls helped finance the building of new roads.

Cultural Life

Education. The Department of Education administers education in South Australia, including Adelaide. Pupils attend primary schools for seven years, and secondary schools for five years if they wish to qualify for entrance to higher education. State secondary schools in Adelaide include high schools, technical high schools, trade schools, and an agricultural high school at Urrbrae. There are also special schools for handicapped children.

Many Church groups have established private schools in the city. These include Presbyterian Girls' College, Prince Alfred College (Methodist), Rostrevor College and Sacred Heart College (both Roman Catholic), and St. Peter's College (Anglican). Private schools provide courses from kindergarten to matriculation level. About one-fifth of the city's school-age population attend private schools.

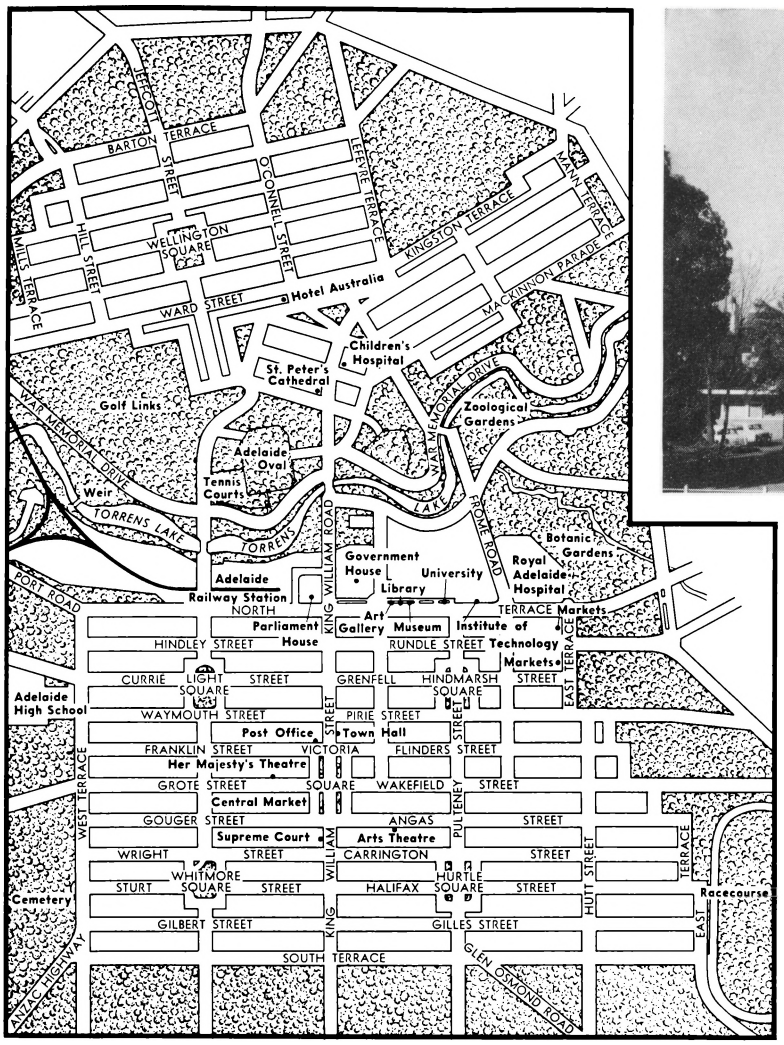
Adelaide provides most of the higher education facilities of South Australia. These include the University of Adelaide, the Flinders University of South Australia, the Institute of Technology, and three teachers' training colleges. See SOUTH AUSTRALIA (Education) in the other Australasian volume.

Libraries. Adelaide contains the Public Library of South Australia and other major libraries, such as those of the University of Adelaide, the Royal Geographical Society, and the Royal Society. In addition, the state government subsidizes local authorities in setting up local public libraries.

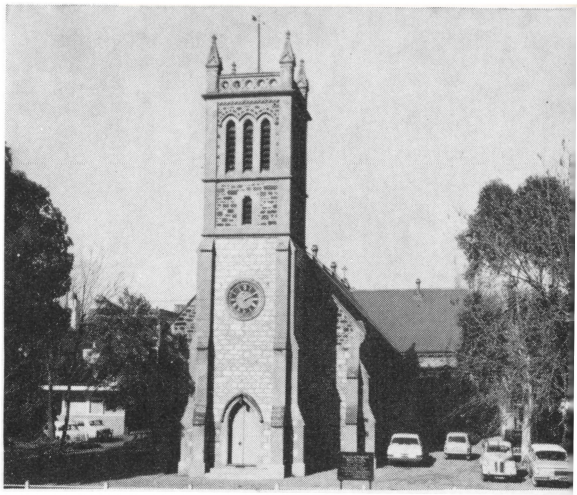
Museums and Art Galleries. The South Australian Museum, the Botanical Museum, the Technological Museum, and the National Gallery are all in Adelaide. There are also a number of private art galleries in the city. The Royal South Australian Society of Arts holds exhibitions of local and overseas paintings.

Entertainment. Adelaide has two professional theatres—Her Majesty's Theatre and Theatre 62. Amateur theatre is also active in the city, mainly because of the Adelaide Repertory Company, which puts on plays at the Arts Theatre, and the University Theatre Guild. The small Sheridan Theatre and the Scott Theatre in the Teachers College Building are also available for theatrical productions. The Festival Theatre is a multi-purpose theatre capable of seating 2,000 people.

Publishing. Adelaide's book-publishing industry is increasing because of the rapid development of two leading publishing firms. Publishers in many parts of Australia make use of the resources of these two firms for printing quality books. The *Australian Book*



The Enveloping Belt of Parkland and the gridiron pattern of the streets make Adelaide unique as a planned city.



"The City of Churches" contains the Holy Trinity Church, the state's oldest church, and the War Memorial, a well-known shrine.

South Australian Govt. Tourist Bureau

Review is published and printed in Adelaide. Adelaide has one morning paper, *The Advertiser,* one afternoon paper, *The News,* and one Sunday newspaper, *The Sunday Mail.*

Radio and Television. In addition to two national radio stations, there are three commercial stations in the city. Adelaide also has one national and three commercial television stations.

Transport

The Metropolitan Tramways Trust and private bus companies provide approximately 485 kilometres (300 miles) of public transport throughout the city. Public bus services carry more than 71 million passengers each year. There are 82 kilometres (51 miles) of suburban rail services, covering the northern, north-western, and southern districts and carrying about 17 million passengers a year.

The present roads, in their grid and radial patterns, serve the needs of metropolitan traffic effectively. But, as the population increases in the outer areas, traffic and the demand for greater parking facilities will increase. Town planners are discussing the construction of motor freeways.

Adelaide's major airport is at West Beach, only a short distance from the city centre. Trans-Australia Airlines and Ansett-ANA provide interstate services from West Beach. The Airlines of South Australia provides services that link Adelaide with most of the important country towns in the state.

Things to See and Do

South Australia attracts more than half a million tourists from the eastern states each year. To meet this demand, hotel and motel accommodation is increasing at a great rate in the city, especially along Glen Osmond Road on the last stretch of the Prince's Highway route from Melbourne. Many visitors make Adelaide their base for exploring the beauty spots in the Adelaide Hills, such as the summit of Mount Lofty and Windy Point. They also explore the Barossa Valley and the rugged coastal

South Australian Govt. Tourist Bureau

The Old Gum Tree, at Glenelg, stands as a living monument to the establishment of the new colony in 1836.

scenery off the Fleurieu Peninsula. The National Park at Belair in the Mount Lofty Ranges occupies 840 hectares (2,075 acres) and provides facilities that include a caravan park, tennis courts, ovals, a wild-life enclosure, and a native flora plantation that is famous for its variety of wildflowers. The old Government House, former residence of the early state governors, has been restored.

Along Gulf St. Vincent, Adelaide has coastal beaches that extend from Outer Harbour to Marino. Sportsmen can use the many excellent golf courses and racecourses. The unique belt of parklands that surrounds the city provides open spaces for sporting and recreational activities throughout the year.

The five squares in the city are also areas of relaxation, especially on bright sunny days in winter and spring. North Terrace, with its tree-lined pavements and its state buildings, is popular with both tourists and local people. The Holy Trinity Church, on North Terrace, is the oldest church building in the state.

Famous artists and orchestras from overseas take part in the Adelaide Festival of Arts, held in the city every two years. The festival, opened in 1960, earns Adelaide world-wide recognition.

At Glenelg, visitors can see the Old Gum Tree monument. The proclamation of South Australia as a British colony was read under the tree in 1836.

Government

The Municipal Council of Adelaide is the main local government body in the city, and is responsible for the central city area. In the suburbs, local municipal councils are responsible for their own *wards* (administrative divisions). Ratepayers over the age of 21 who are British subjects may vote in local government elections, held on the first Saturday of July each year. For the city council, local ratepayers vote for a mayor, 6 aldermen, and 12 councillors. For local municipal councils, ratepayers vote for a mayor and two councillors in each ward.

History

By 1836, some early settlers had landed on Kangaroo Island, near Adelaide, under the sponsorship of the South Australian Company. This company intended to develop the whaling and fishing industry as a major livelihood for the new colony after good reports about the island from Matthew Flinders. The company instructed William Light to survey the best sites for a capital city, so that the governor and the settlers could establish a colony without delay when they arrived. Light found Kangaroo Island unsuitable for the site, and explored the eastern shore of Gulf St. Vincent. He named Rapid Bay after his own ship. He chose the centre for the colony soon after he had landed in Holdfast Bay in July, 1836, and finally selected the site for Adelaide about 6 miles inland from the coast.

The first mail steamers from Britain arrived at Adelaide in 1874, and had to anchor off Glenelg in Holdfast Bay. Later, they were able to unload cargo and passengers at the jetty at Largs Bay. Larger ships could not unload at Adelaide until 1908, when Outer Harbour was opened.

In 1840, Adelaide became the first municipality in Australia under the Australian Municipality Act that was passed by Governor Gawler (see GAWLER, GEORGE, in this volume). Under this act, any town with a population of 2,000 was permitted to establish its own form of local government. In 1857, the South Australian parliament came into being in Adelaide. Four years later, it passed an act allowing ratepayers to elect their own mayor. In 1919, the British government gave the mayor the title *Lord Mayor.*

As agriculture developed around the city, Adelaide grew as the market centre of the state. Up to 1939, the major industries in the city were food processing, agricultural engineering, and the manufacturing of household goods. But the number of industries in the city has grown rapidly with a corresponding increase in the opportunities for employment. Today, the total work force in the metropolitan area is more than 250,000.

Related Articles in WORLD BOOK include:

MAIN VOLUMES

Anderson, Dame Judith
Bragg, Sir William
Florey, Lord

AUSTRALASIAN VOLUMES

Elizabeth
Gawler, George
Gulf Saint Vincent
History of Australia
Kangaroo Island
Light, William
Mount Lofty Ranges
Oliphant, Sir Mark
Playford, Sir Thomas
Rapid Bay
South Australia
Torrens

ADELAIDE FESTIVAL OF ARTS. See FESTIVALS in this volume.

ADITYARVARMAN was ruler of the kingdom of Melayu in central Sumatra at the end of the 1300s. Historical records show that he owed loyalty to the Hindu-Javanese kingdom of Madjapahit. But historians regard him as a ruler in his own right. At first, he ruled only in Djambi, on the eastern coast of central Sumatra. But soon he extended his influence. He moved his capital inland to a site near Pagar Rujung, which later became the capital of the great kingdom of the Minangkabau. At the end of the 1300s, Adityarvarman joined with the ruler of Madjapahit in conquering the empire of Srivijaya. See HISTORY OF INDONESIA (Indian Influences) in this volume.

ADULT EDUCATION in Australasia has three aims. One aim is to benefit the community by educating adults to be more useful citizens. Another aim is to enrich the lives of individual people by helping them to develop constructive leisure interests. A third aim is to give adults an opportunity to follow new careers by teaching them new practical skills or new theoretical knowledge.

Benefiting the Community is one of the chief aims of adult education in developing countries, such as Indonesia and Malaysia. In the 1950s and early 1960s, adult education authorities in Indonesia and Malaysia concentrated on helping country people to raise their living standards. The courses began by teaching the people to read and write. In Indonesia, the government organized competitions between villages, and awarded prizes to the ones that achieved the most rapid progress. In Malaysia, the government arranged special classes in country areas. Teachers not only taught reading, writing, and arithmetic, but also introduced students to such subjects as health and hygiene, basic agricultural science, and the Malaysian system of government.

In Australia and New Zealand, adult education authorities arrange special evening classes for immigrants from the mainland of Europe. The classes teach the immigrants English, and introduce them to various aspects of life in their new countries. In Singapore, adult education classes give students an opportunity to learn Chinese, Malay, or Tamil. The government tries to break down language barriers within the community.

Developing Leisure Interests is the aim of much of adult education in Australia, New Zealand, and Singapore. Many people attend evening classes in such subjects as art appreciation, drama, international affairs, sociology, and various languages. Others study practical skills, such as carpentry, dressmaking, motor maintenance, and photography. Adult education authorities also organize many of the art exhibitions and film, drama, and music festivals in Australia and New Zealand.

Preparing for New Careers is the aim of many of the students who attend adult education courses. In all the countries of Australasia, they have an opportunity to obtain basic qualifications through evening study. Some courses provide a general education, helping students to qualify for university entrance, and even to obtain a university degree. Other courses teach such subjects as computer programming or electronics engineering.

Organization of Adult Education. In Australia, adult education is the responsibility of the departments of education in the various state governments. In the other Australasian countries, it is the responsibility of various national government ministries or agencies. For example, adult education in Malaysia is controlled partly by the Ministry of Rural and National Development and partly by the Ministry of Education. New Zealand has a separate agency, the National Council of Adult Education, which organizes courses through several regional councils.

Throughout Australasia, universities play an important part in sponsoring and planning adult education courses and in providing lecturers. Australia and New Zealand also have several voluntary organizations, such as the Workers' Educational Associations, that provide facilities for adult education.

Related Articles in the Australasian volumes of WORLD BOOK include:

Correspondence Schools
Education in Australia
Education in Indonesia
Education in Malaysia
Education in New Zealand
Education in Singapore
Universities

AERIAL TOP-DRESSING. See AGRICULTURAL AVIATION in this volume.

Australian News and Information Bureau

Adult Education is of great importance in Australasia. Many educational authorities organize summer schools—short, residential courses held in the summer months.

AGRICULTURAL AVIATION

AGRICULTURAL AVIATION, the use of aircraft to help farmers, has become an important industry in Australia and New Zealand. John Lambert, a farmer in the North Island of New Zealand, first suggested in 1926 that dropping fertilizer from aircraft might solve many farmers' problems. The hilly pastures of New Zealand needed fertilizer before they could provide food for more livestock. Using normal methods, farmers would transport the fertilizer on horseback and spread it by hand. With aircraft, they could do the job much more quickly and efficiently. But men did not develop Lambert's idea until after World War II.

Since 1948, New Zealand has led the world in the development of agricultural aviation. The country has good rainfall and climate, but is largely mountainous. Using aircraft, a few men can do quickly and efficiently jobs that would normally take many people a long time. As a result, the land has become far more fertile and able to support much more livestock. Thousands of acres of farm land have been developed and used more fully. Experts estimate that *aerial top-dressing* (spreading fertilizer by air) alone earns New Zealand an extra $NZ 100 million a year in exports of meat, wool, and dairy produce.

The industry has also developed rapidly in Australia. Agricultural aviation operators now treat more than 6 million hectares (15 million acres) of land a year. Pest control and rain-making, as well as the spreading of fertilizer and seed, are important aspects of the industry in Australia.

How Aircraft Are Used

Aerial Top-Dressing is the chief branch of agricultural aviation in both Australia and New Zealand. In New Zealand, about half of all the farm land is hill country, and about half the fertilizer used on it is spread by aircraft. The main fertilizer used on pasture-land is superphosphate, which increases the nitrogen content of the soil by encouraging the growth of clover. Farmers may also spread potash or small quantities of cobalt, copper, or molybdenum compounds mixed with the superphosphate.

Farmers who use aerial top-dressing generally have airstrips for the aircraft to use and, nearby, bins to hold the fertilizer. The fertilizer is loaded into the hoppers of the aircraft mechanically. The pilot flies the plane low over the land to be dressed. He can accurately control the amount of fertilizer released onto the land. The pilot needs to land frequently to reload the plane's hoppers. Most aerial top-dressing is done in fine, calm weather, because winds increase the danger to the pilot and also blow the fertilizer about. In both Australia and New Zealand, aerial top-dressing companies work for private farmers and for government departments engaged in large-scale land development. They carry out their work mainly in the spring and autumn.

Sowing Seed is another extremely important job for agricultural aviation operators. In particular, they sow clover and grass seed on pasture-land in hilly areas. They generally first spread fertilizer, and then sow the seed, but they may spread a mixture of seed and fertilizer. When scrub or bush country is being converted into pasture, farmers first burn the wild vegetation. If the land is flat, they plough it before sowing the seed. But, in hilly country, aircraft sow the seed directly onto the ash.

Killing Weeds and Pests. In Australia, one of the first uses of aircraft in agriculture was to drop poisonous baits to kill dingoes. Campaigns to exterminate rabbits in the same way in both Australia and New Zealand have been extremely successful. Farmers also use aeroplanes and helicopters to apply liquid weed-killers to pastures, lakes, and canals, and insecticides to crops and pastures.

Making Rain is extremely important to Australian farmers, because Australia receives so little rain. Men can make clouds produce rain by "seeding" them with crystals of silver iodide or dry ice dropped from aircraft. The Commonwealth Scientific and Industrial Research Organization has carried out much research into rain-making, using aircraft of the Royal Australian Air Force. See RAIN MAKING in the main volumes.

Hunting Deer. Many deer still live around the lakes and fiords of the South Island of New Zealand. A new industry has developed in the area—exporting venison to Germany and the United States. Men use helicopters to herd the deer towards waiting hunters and to transport the venison out of the bush.

Other Uses of aircraft in agriculture vary widely. They include fire-watching and fire-fighting, transporting such materials as fencing posts, feedstuffs, and livestock to remote areas, and inspecting herds and boundary fences on large stations. In northern Western Australia, aircraft are used to carry meat from inland abattoirs to ports on the coast.

What Aircraft Are Used

Farmers and aerial top-dressing companies in New Zealand have used more than 12 types of aircraft for agricultural purposes. The ones used today include the *Fletcher FU24,* the *Cessna Agwagon,* the *Piper Pawnee,* the *DeHavilland Beaver,* and the *Transavia Airtruk.* Heavier aircraft used on the extremely large hill-country stations include the *Douglas DC3.* It can carry up to 5 tonnes of fertilizer. More and more helicopters are being used. More than 40 companies operate a total of about 250 aircraft in agricultural aviation in New Zealand.

An American company specially designed the *Fletcher FU24* for aerial top-dressing work in New Zealand. It is the most popular aircraft for this work in the country, and carries almost a tonne. *FU24s* spread more than half of New Zealand's aerial fertilizer.

The most common agricultural aircraft in Australia is the *Cessna,* but the *Beaver,* which carries up to a ton, spreads more fertilizer. Other aircraft used include the *Piper,* the *Ceres,* which is built in Australia, and the *Airtruk,* which is designed and built in Australia. About 60 companies with more than 200 aircraft are engaged in agricultural aviation.

History

A. M. Pritchard, a former chief pilot of the New Zealand Public Works Department, carried out lim-

The Use of Aircraft in Agriculture is particularly advanced in New Zealand, where aircraft spread more than half of all fertilizer used, *above*. In Australia, *right*, lone sheep drovers receive supplies dropped from the air.

N.Z. National Publicity; Australian News and Information Bureau

ited trials of aerial seed-sowing at Ninety Mile Beach, North Auckland, in 1939. And, in 1946, another Public Works Department pilot, O. J. C. Anderson, carried out some top-dressing trials. But the first major aerial top-dressing trials took place in September, 1948, when aircraft of the Royal New Zealand Air Force spread fertilizer at Ohakea. The trials aroused the interest of farmers, and, the following year, pilots who had returned from World War II formed the first aerial top-dressing companies. They flew tiny *Tiger Moth* biplanes.

In the first year, the *Tiger Moths* dropped about 5,080 tonnes (5,000 tons) of phosphate fertilizer on about 19,200 hectares (48,000 acres) of New Zealand farm land. The industry expanded rapidly and within 15 years aircraft were spreading nearly a million tonnes a year on more than 2·6 million hectares (6·5 million acres) of land. During the same period, the number of sheep in New Zealand grew from 34 million to more than 50 million mainly because of aerial top-dressing.

Agricultural aviation started in Australia at about the same time as it did in New Zealand, but the early expansion of the industry was much slower. The increase became rapid only after about 1957. Then, in less than 10 years, the number of hectares top-dressed, seeded, or sprayed from the air increased nine times. As in New Zealand, increasing the use of aerial top-dressing greatly increased the number of sheep. In 1950, Australia had about 112 million sheep. In 1964, it had 158 million. The number of cattle also increased rapidly, from 14·5 million to 18 million in the same period.

See also AGRICULTURE and AVIATION in the main volumes; AGRICULTURE in this volume; PEST CONTROL in the other Australasian volume.

Rice is the staple food of Indonesians and Malaysians. About 20 million farmers in Indonesia cultivate rice.

Wool earns most money for farmers in Australia and New Zealand. Their sheep farms are the largest in the world.

AGRICULTURE accounts for much of the wealth of Australia, Indonesia, Malaysia, and New Zealand. Australia's farmers contribute about one-thirteenth of the value of all the goods and services produced in the country. New Zealand's farmers contribute about one-sixth, and farmers in Indonesia and Malaysia contribute a little less than half.

Agriculture is vitally important in the trade of three out of the four countries. In Australia, about $A 50 out of every $A 100 earned in overseas trade comes from the sale of crops or animal products. Agricultural exports are almost as important to Malaysia. New Zealand farm products earn as much as $NZ 85 out of every $NZ 100 obtained from export sales. Agriculture is less important in the trade of Indonesia, which earns most foreign currency by exporting petroleum.

Many people in each of the four countries earn their living by farming. About 80 out of every 100 Indonesians and 60 out of every 100 Malaysians live on farms. A smaller proportion of the people of Australia and New Zealand live on farms—14 out of every 100 people in Australia, and 21 out of every 100 people in New Zealand.

Patterns of agriculture in each of the four countries vary because of varying economic circumstances. But climate and history have also influenced the forms of agriculture practised.

The Climate for Farming

Tropical Agriculture. A tropical climate is hot and humid, with heavy falls of rain in summer and winter. Crops that flourish in these conditions include cassava, maize, and rice, and various tropical fruits, such as pineapples. In addition, Indonesian and Malaysian farmers produce coconuts, coffee, palm oil, rubber, sugar, tea, and tobacco.

Subtropical Agriculture. The northern, tropical part of Australia consists of two distinct regions. Along the north-eastern coast of Queensland, rainfall varies from 916 millimetres (40 inches) a year in some places to more than 7,620 millimetres (300 inches) in others. Many farmers in this region grow sugar-cane. Others raise beef or dairy cattle. A few produce tropical fruits such as pineapples.

The rest of northern Australia has a summer rainfall, but practically no winter rainfall. Coastal areas receive more than 916 millimetres (40 inches) of rain a year, but farther inland the rainfall is less. Most farmers in this region raise beef cattle. Some farmers in central Queensland raise sheep. In the north-eastern part of Western Australia, a few farmers grow cotton and other crops in the area irrigated by the Ord River.

Temperate Agriculture. Most of southern and south-eastern Australia has a temperate climate. Rain falls mainly during winter, and diminishes away from the coast. Farmers in these regions grow various cereal crops, of which wheat is by far the most important. Most wheat farms are located in the south-western part of Western Australia and to the west of the Great Dividing Range in south-eastern Australia. Both regions have a rainfall of from 250 to 650 millimetres (10 to 25 inches) a year. Many wheat farmers also raise sheep for both wool and meat. In inland regions, where there is not enough rain to grow crops, farmers raise sheep for wool. Wool production is also important on the

tablelands of the Great Dividing Range. On the coastal pastures of New South Wales, southern Queensland, and Victoria, and in the south of Western Australia, farmers raise dairy cattle. Beef production is an important industry on the coast of northern New South Wales.

Australian governments have developed several irrigation schemes because Australia's rainfall is, for the most part, not only low but also unreliable. In the Murrumbidgee Irrigation Area, farmers with large farms grow rice and keep sheep. Farmers with small farms grow fruit and vegetables.

New Zealand has an extremely favourable climate for agriculture. In the North Island, pastures continue to grow throughout most of the year. In the South Island, their growth is checked during winter. The mountainous nature of much of the country, especially in the South Island, limits farming activities, but farmers graze sheep on all but the steepest slopes. Most dairy farms are located in the lowland areas with the best pastures, such as the western districts of the North Island. In lowland areas with poorer pastures, farmers raise flocks of lambs for meat, or keep herds of beef cattle.

Fred Mayer, Magnum; Ern McQuillan; David Moore

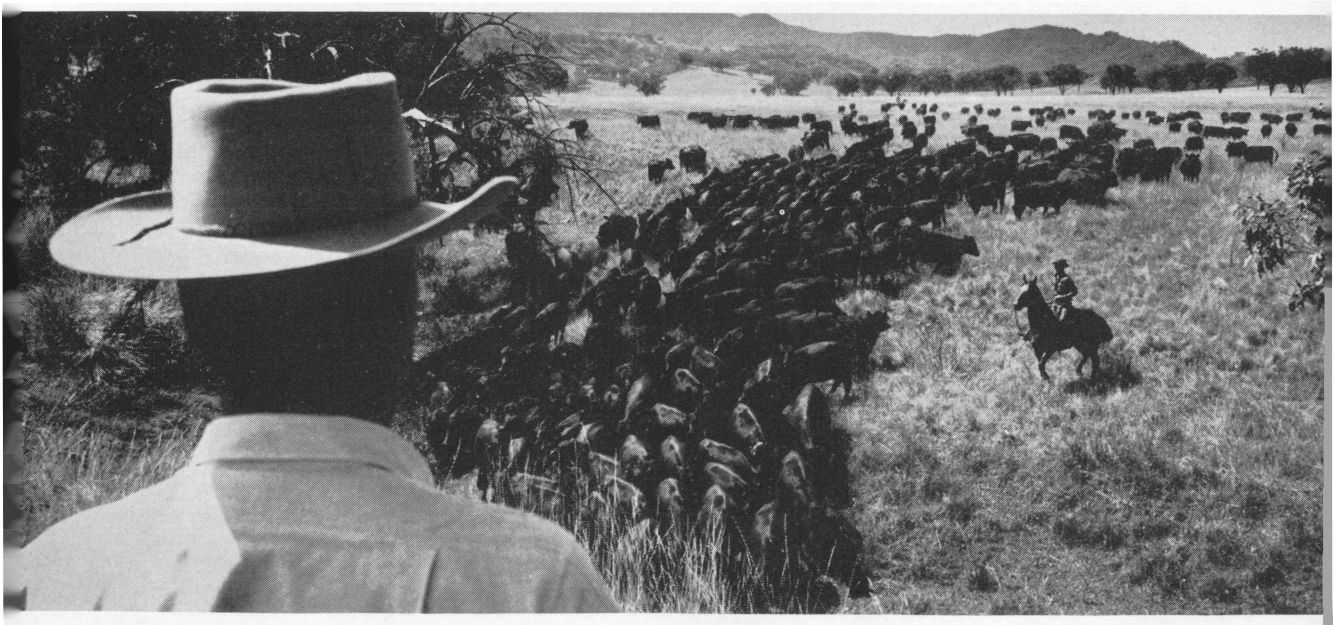
Economic Farming

Some farmers in Indonesia and Malaysia are *subsistence farmers*—that is, they farm only to provide enough food for their own needs. But most Indonesian and Malaysian farmers and all farmers in Australia and New Zealand are *commercial farmers*—they sell their produce for money, and grow the crops and keep the animals that are likely to bring them the highest profits. For example, when prices for wool increased sharply in the 1950s, many Australian wheat farmers used more of their land for grazing sheep and less for growing wheat. When wheat prices improved in the early 1960s, they changed emphasis again.

Apart from prices, many other factors affect farmers' profits. They must take into account the costs of buying farm machinery, hiring farm workers, transporting farm produce, and borrowing money to develop their farms. Government policies also affect farm profits. The Australian government encourages farmers to produce butter, dried fruits, rice, tobacco, and wheat by guaranteeing prices and in some cases paying the farmers subsidies (see SUBSIDIES in the other Australasian volume).

Subsistence Farming. In both Indonesia and Malaysia, subsistence farmers either own smallholdings or practise a form of shifting agriculture called *ladang*. Many holdings are extremely small because, under Islamic laws, a man's property must be divided among all his heirs on his death. As a result,

Livestock are few on Malaysian farms, and farmers keep animals mainly to provide meat for their own families. In Australia, many cattle stations carry thousands of animals.



farms are subdivided into smaller and smaller lots until they become too small to be worked efficiently. The ladang farmers have no permanent farms. They clear patches of jungle, grow food in the clearing until the soil is exhausted, and then move on to begin the whole process again. The main crops that both smallholders and ladang farmers grow are cassava, rice, and sweet potatoes. Some farmers also keep a few farm animals as other sources of food for their families.

Commercial Farming. In both Australia and New Zealand, farms are much larger than in Indonesia and Malaysia. Some Australian cattle stations in arid areas extend over as much as a thousand square miles. Many of the farms are large enterprises in which the owners invest large sums of money, and management of the farm is as complex as the management of any other kind of business. Farm managers must find the most profitable markets in which to sell their products. At the same time, they must try to save money by buying economically or making any other savings they can.

In Indonesia and Malaysia, the largest farms are plantations and estates, established by European companies in the 1800s and early 1900s. Many of the estates extend over areas of several thousand acres. In Indonesia, the estates produce cinchona, coffee, palm oil, rubber, sugar, and tea. In Malaysia, most estates produce rubber. Others grow coconuts, oil palms, and tobacco. Since World War II, both the Indonesian and the Malaysian governments have encouraged smallholders to grow many crops previously grown mainly on estates. In the mid-1960s, more than two-thirds of the rubber exported from Indonesia came from smallholdings.

Scientific Farming

At one time, farmers believed that the amount they could produce depended entirely on how much land they used. Today, farmers know that they can achieve enormous increases in production without increasing the area that they cultivate. Increased production results from the use of fertilizers, pesticides, and other scientific aids.

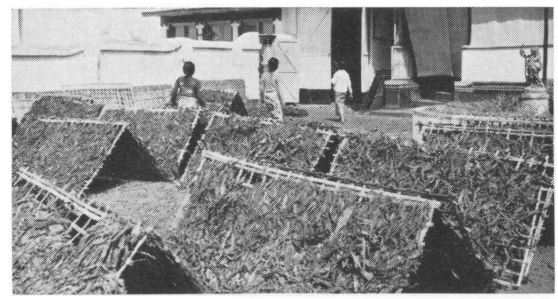
Improving the Soil is one of the main concerns of agricultural scientists in Australia and New Zealand. Australian scientists were puzzled in the 1930s because some large areas in Australia remained barren even though they received sufficient rainfall. Then the scientists discovered that they could make the land fertile by adding to it small quantities of *trace,* or *minor,* elements, such as molybdenum, nickel, and cobalt. The discovery transformed areas of poor country, such as the Ninety-Mile Desert in South Australia, into good grazing land.

In both Australia and New Zealand, farmers have made wide use of legumes, such as various clovers, to build up and maintain the amount of nitrogen in the soil of their pastures. In southern Australia, subterranean clover, a plant originally introduced from Mediterranean countries, has been of great value in enriching grazing land.

Australian and New Zealand farmers also use various chemical fertilizers. Superphosphate, which encourages the growth of clover, is the most important of them. But more concentrated kinds of phosphatic fertilizers and nitrogenous fertilizers are used in some areas. For some crops, such as cotton, farmers inject ammonia gas directly into the soil.

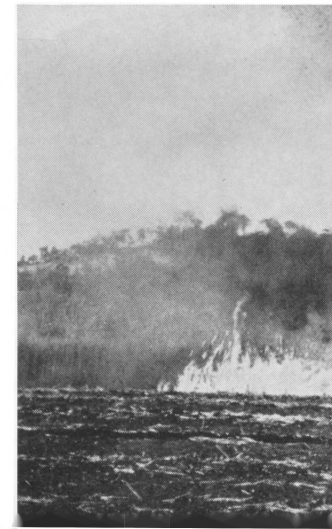
Improving the Crop. Agricultural scientists undertake a continuous programme of research to improve the yields and quality of crops, and to increase the resistance of plants to attacks by insects or disease. They introduce new or improved strains of plants from other countries, or breed entirely new varieties themselves.

In Australia, research workers have devoted a great deal of effort to developing new varieties of wheat to resist *rust,* a fungus that attacks wheat plants (see RUST in the main volumes). Other Australian crops that have been greatly improved by selective breeding include sugar and rice.



Paul Popper; New Zealand National Publicity

Indonesian Farmers stack tobacco leaves by hand for drying in the sun, *above.* New Zealand farmers, *left,* use mechanical harvesters to gather the tobacco crop.



Australian Farmers in New South Wales and Queensland set fire to the sugar fields before harvesting the sugar cane.

In Malaysia, scientists have developed varieties of the hevea tree that yield much more rubber than previous varieties. The Malaysian government offers grants of money to smallholders who replant their land with the improved trees.

In New Zealand, scientists have developed improved varieties of grasses. The use of these varieties has greatly increased the carrying capacity of pastures in the country. Farmers can now graze many more animals on the same area of land.

Improving the Stock. Agricultural scientists breed animals to suit local conditions, just as they develop new varieties of plants. For example, research workers introduced Zebu cattle into Queensland and crossbred them with British breeds. The new breeds of cattle that resulted were able to resist the heat and livestock pests much better than traditional breeds.

In both Australia and New Zealand, farmers have improved the yields of their dairy herds and obtained more wool from their sheep by careful selection and breeding. They select sheep for breeding on the basis of scientific tests of the quality of fleeces and meat carcasses. They select dairy cows on the basis of records of milk yields.

Animal scientists have also done much to eliminate livestock pests and to prevent animal diseases. Their work in eliminating such diseases as pleuropneumonia and enterotoxaemia has greatly increased the profits of cattle and sheep farmers.

Educating the Farmer. The work of agricultural scientists is of little value unless farmers learn to make full use of it. The governments of Australia, Indonesia, Malaysia, and New Zealand each provide agricultural advisory services. The agricultural advisory officers train farmers in new farming techniques and show them how to apply the results of the latest scientific research to their own problems. In addition, all four countries have agricultural colleges, as well as university faculties of agriculture.

History

Australia. The first European settlers aimed mainly to produce enough food to make their settlements self-sufficient. They did not always succeed, and, sometimes, the settlements had to import wheat from Tasmania and South America. Australia did not become an exporting country until the early 1800s, when John Macarthur and other farmers began sheep farming. Wool and *tallow* (animal fat) became increasingly important exports as squatters spread their flocks of sheep over the inland plains.

In the 1850s, many new settlers arrived in Australia, attracted by the discovery of gold there. Farmers had to expand their production to provide food for them. When the gold-fields ceased to be productive, in the mid-1860s, many miners turned to farming. Some of the big farming properties were divided among the new farmers, who worked the land more intensively than its previous owners.

The development of a network of railways provided farmers with new markets, and they began to produce a wider range of products. Farmers, particularly in South Australia, grew large quantities of wheat, some of which was exported to other countries. During the same period, farmers in Queensland began to grow sugar-cane, and a sugar industry developed rapidly in the area. With the introduction of refrigerated ships in the 1880s, farmers could export meat and dairy produce. Occasional droughts caused temporary set-backs, but, by 1900, farmers were obtaining a wide variety of products from most of the usable land in Australia.

During the early 1900s, state governments encouraged more farmers to settle on the land and to farm it more intensively. They also helped to develop inland areas of irrigated land. During the 1920s, farmers prospered, but the economic depression of the 1930s checked expansion. About this time, governments began to help farmers more directly by paying them subsidies and guaranteeing the prices of some farm products. But, in spite of government help, Australian agriculture continued to make poor progress.

Then, between the early 1950s and late 1960s, Australian farms doubled their output. Farmers achieved the increase by spending large sums of money on developing their farms and by taking advantage of new scientific discoveries.

Indonesia. For hundreds of years, farmers in the East Indies sold spices and other tropical produce to Arab and European traders. In 1798, the islands of the East Indies came under the direct control of the Dutch government. In the 1820s, Dutch authorities

Gert D. Wolff

introduced the *culture system* of agriculture, under which villagers raised such crops as indigo, sugar, and coffee on their own or government lands. Dutch officials supervised their work, and paid them for their produce.

In 1870, the Dutch authorities introduced a new system of agriculture. They passed a law that allowed European planters to lease areas of land for up to 75 years—long enough to enable them to make a profit from producing such crops as rubber and tea. This law was the basis for the development of the *estate system* of agriculture in Indonesia. The opening of the Suez Canal encouraged rapid agricultural expansion in the late 1800s.

During the early 1900s, government authorities gave farmers in the East Indies further help. They began new irrigation programmes, extended their agricultural advisory services, and improved educational opportunities. In the 1930s, the economic depression in the East Indies, as in Australia, seriously affected the estates, which depended on export markets for their prosperity.

After Indonesia proclaimed its independence, in 1945, the government passed many laws dealing with land reform. The Basic Agrarian Law of 1960 limited the amount of land a person could own and kept him from owning any land that he did not live on. The government established policies that encouraged the farming activities of smallholders at the expense of large estates. It also encouraged a wider range of farming activities.

Malaysia. During the 1800s, most of Malaya's wealth came from tin mining rather than from agriculture. The first large estates produced spices and *gambier* (a shrub used in tanning and dyeing). Later estates cultivated sugar-cane, tapioca, coconuts, and coffee. A sharp fall in coffee prices in the 1890s, followed by a sharp rise in the demand for rubber for electrical goods and motor-cars, encouraged many estate owners to grow rubber. After 1926, a few estates began to grow oil palms.

Many of Malaya's rubber estates were badly damaged during World War II, and rubber production did not recover until several years after the end of the war. After the foundation of Malaysia, in 1963, the government helped farmers in many ways. It made plans to develop thousands of acres of new farm land, to plant new, high-yielding rubber trees, and to provide irrigation works to help rice growers.

New Zealand agriculture developed on much the same pattern as Australian agriculture. The sheep industry began with the introduction of Merino sheep into New Zealand in 1834. Later, several British breeds were imported. Wool and tallow were New Zealand's main exports until the 1880s. Then, the invention of efficient methods of refrigeration encouraged farmers to breed sheep for meat and to develop New Zealand's dairy industry.

During the 1900s, New Zealand farmers improved their pastures and their livestock. Their produce acquired a reputation for high quality throughout the world. The depression of the 1930s persuaded the New Zealand government to take action to make the prices of agricultural products more stable. New Zealand exports a smaller range of products than Australia, and is more vulnerable to variation in the prices of the goods it sells.

Related Articles. See AGRICULTURE, in the main volumes, and its list of related articles. See also the following articles in the Australasian volumes:

BIOGRAPHIES

Bradfield, John Job Crew
Brydone, Thomas
Bull, John Wrathall
Chaffey (family)
Farrer, William
Lascelles, Edward
Macarthur, John
McKay, Hugh Victor
Mort, Thomas Sutcliffe
Pridham, John Theodore
Ridley, John
Ruse, James

UNCLASSIFIED

Agricultural Aviation
Artesian Water
Cawthron Institute
Cotton Industry
Dairy Industry
Droving
Food Processing
Fruit Growing
Goyder's Line
Irrigation
Meat Production
Mustering
Palm Oil Industry
Pest Control
Rice Growing
Rubber Production
Scientific Research
Shearing
Squatters
Stations
Subsidies
Tea Growing
Tobacco Growing
Wheat Production
Wine Production
Wool Production

AGUNG, the highest mountain on the Indonesian island of Bali, is a live volcano. Its conical peak rises to a height of 3,142 metres (10,308 feet) above sea level on the eastern side of the island. For location, see INDONESIA (colour maps) in this volume. The Balinese, who follow the Bali-Hindu religion, consider Agung a home of the gods. Their largest temple, Pura Besakih, stands on its slopes.

AGUNG, SULTAN (? -1645), was the ruler of the central Javanese kingdom of Mataram from 1613 until 1645. He was both a great military commander and a scholar. Under his rule, Mataram reached the peak of its greatness and power. He conquered the whole of Java, and forced several kings of neighbouring islands to acknowledge his authority. He spread Islam to many of the conquered areas and received the title of *Sultan* from Mecca.

Sultan Agung concerned himself greatly with literature and philosophy. His capital was a centre of learning. He changed the calendar system used in Java from the traditional Hindu year, based on the sun, to a new system based on the moon.

See also AMANGKURAT in this volume.

AGUS SALIM, HAJI (1884-1962), was a Muslim nationalist leader in Indonesia. During the 1930s, he represented the *Sarekat Islam* (Islamic Union) in the *Volksraad* (people's council), and used constitutional methods to press the Dutch to grant nationalist demands. During the Indonesian Revolution, he served as minister of foreign affairs for the republican government. Agus Salim was born in western Sumatra. He retired from politics in the late 1940s.

AHEM ERNINGPRAJA (1912-), an Indonesian trade union leader, was minister of labour and president of the trade union federation (KBKI) during the 1960s. He tried unsuccessfully to unify various labour federations in Indonesia. In the mid-1960s, Ahem became ambassador to North Korea. He was born in West Java.

Associated Press

Agung, Bali's highest mountain, erupted in 1963, killing about 1,500 people. The Pura Besakih temple, built in the 1300s, was in the danger zone.

AHMAD BUSTAMAM (1920-), a Malaysian socialist politician, was arrested and detained in prison in 1963. He was one of several leaders of the left-wing Socialist Front imprisoned by the Malaysian government for expressing pro-Indonesian views at a time when Indonesia was threatening to "crush" Malaysia. Bustamam formed the *Party Rakyat* (Peasants' party) in 1955. In 1958, the Party Rakyat united with the Labour Party of Malaya to form the Socialist Front. It was moderately successful in federal elections in 1959, but lost popularity in 1964.

M. Wong

Ahmad Bustamam

AHMAD IBRAHIM (1916-), a leading Singapore lawyer, served as attorney-general in the Singapore government in the early 1960s. Ibrahim was born in Singapore and was educated at Raffles College there. Later, he studied law at the University of London and Cambridge University.

AIDIT, DIPA NUSANTARA (1923-1965), was leader of the Indonesian Communist party (PKI) from 1954 to 1965. In 1965, he went into hiding after army leaders accused the PKI of backing an unsuccessful attempt to seize power. Later, he was reported to have been killed.

Aidit was born in eastern Sumatra. He joined the PKI in 1943, and became a member of the central committee of the party in 1946. Two years later, he was appointed to the labour secretariat of the PKI's central office. He became first secretary of the PKI in 1951, when a group of young communists gained control of the party. In 1954, he became secretary-general of the party.

Aidit did not enter the government until 1962, when he was included in the state leadership consultative body. Sukarno admitted Aidit to the government under his policy of *Nasakom,* by which he tried to unite nationalist, religious, and communist groups.

AIF. See ARMED SERVICES OF AUSTRALIA (History) in this volume.

AINSLIE, JAMES (1790?- ?), a pioneer, established the second settlement in the Canberra district at Duntroon in 1825. Ainslie served as an overseer for Robert Campbell, a Sydney merchant. In 1825, Campbell was allocated 4,000 acres of land in the Canberra district, which was then known as the Limestone Plains. Campbell was also allocated 700 sheep from among the government flocks at Bathurst. Ainslie drove the sheep overland to the area that was later called Duntroon.

Ainslie had served as a trooper in the Scots Greys, and fought at the Battle of Waterloo in 1815. He arrived in Sydney in 1822. In 1835, Ainslie left for Scotland, where he recruited labourers for Duntroon and arranged their passage to Australia, mainly in Campbell's ships. Ainslie is believed to have died in Scotland.

AIR BEEF. See CATTLE INDUSTRY in this volume.

AIR FORCE. See ARMED SERVICES OF AUSTRALIA; ARMED SERVICES OF INDONESIA; ARMED SERVICES OF MALAYSIA; and ARMED SERVICES OF NEW ZEALAND in this volume.

Boeing 747 Aircraft, popularly known as jumbo jets, serve Sydney and other airports in Australasia. These huge aircraft have helped to increase tourism and reduce isolation in the south-western Pacific area.

Qantas

AIR TRANSPORT has greatly reduced isolation in the south-western Pacific. The growth of air transport has benefited both small island communities such as Nauru and the small inland communities of the larger land masses like Australia. They are all within a few hours of a major centre of population. Perhaps more important, air transport now brings vast numbers of tourists from other countries of the world to the area. As a result, the money from tourism is helping some of the smaller communities to develop economically at a pace never dreamed of.

The activity in the south-western Pacific and the rising interest in south-eastern Asia have added importance to places such as Fiji and Singapore. They are now vital crossroads in a complicated pattern of air services serving many millions of people.

Airports

The rapid growth of air transport has been accompanied by great expansion of airports and their associated facilities. Most of the countries in the area have built new terminals at great cost. Sydney, Australia's busiest airport, handles over 100,000 aircraft movements, more than 4½ million passengers, and 80,000 tonnes (80,000 tons) of freight a year.

International Services

The region is served by nearly all the major airlines of the world, 15 of which fly to various cities in Australia from outside the region. They are: *Air India, Alitalia* (Italian), *American Airlines, BOAC* (British), *Canadian Pacific, Cathay Pacific* (Hong Kong), *Japan Air Lines, KLM* (Dutch), *Lufthansa* (German), *Olympic Airways* (Greek), *Pan American, Philippine Airlines, South African Airways, Thai International,* and *UTA* (French). Four of these airlines (*American, BOAC, Pan American,* and *UTA*) also serve New Zealand from outside the region, and *Aeroflot* (Russian) and *CSA* (Czechoslovak) fly to Indonesia. Most countries in the region have their own airlines flying within and beyond Australasia.

Air Nauru is owned by the Nauruan government. It began service with a twin-jet *Falcon* based in Melbourne, but in 1972 it took delivery of a *Fokker F28 Fellowship.* The service operates from Melbourne, Sydney, and Brisbane to Nauru and then north to Majuro in the United Nations Trust Territory.

Air New Zealand, formerly Tasman Empire Airways Ltd., was founded in 1940 to operate trans-Tasman services for the governments of New Zealand, Australia, and Britain. It was owned jointly by Australia and New Zealand until 1961, when it became wholly owned by the New Zealand government. It has now pushed eastward to Los Angeles in California and westwards to Singapore and Hong Kong, operating these services with *DC8* aircraft. It operates many Tasman services to Brisbane, Sydney, and Melbourne and a number of Pacific Islands services.

Air Pacific was founded in 1951 by a famous Australian navigator, Harold Gatty, as *Fiji Airways.* After Gatty's death in 1958, Qantas took over the airline. It has since become an important regional operator. A list of its shareholding indicates something of its importance. It is now owned by Air New Zealand, BOAC, and Qantas; by the Fijian, Nauruan, and Tongan governments; and by the Western

Pacific High Commission, representing a number of island protectorates.

To confirm its importance, its name was changed to Air Pacific in 1972. It operates a mixed fleet of turbo-prop aircraft and piston engine aircraft. Air Pacific entered the jet age in 1972 when it took delivery of a twin-jet *BAC 111-475*.

The airline's network extends from Nandi and Suva through many of the Pacific Islands to Port Moresby, the Gilbert and Ellice Islands, Nauru, Western Samoa, Tonga, and the New Hebrides.

Garuda Airways is owned by the Indonesian government and operates international and domestic services. Following World War II, the Dutch airline, *KLM,* and the Indonesian government formed Garuda as a successor to the pre-war *K.N.I.L.M.,* which was a subsidiary of KLM. After Indonesia gained independence, KLM sold its holding to the Indonesian government. While it is largely a regional airline, Garuda, under a leasing arrangement with KLM, flies *DC8* aircraft to Australia and Europe. *DC9s* and *Electras* are used on its regional services.

Malaysian Airlines System (MAS), owned by the Malaysian government, is based at Kuala Lumpur. It is basically a domestic operator. The airline was created after the governments of Malaysia and Singapore decided to divide Malaysia-Singapore Airlines into two airlines in the early 1970s.

Merpati Nusantara Airlines was formerly a domestic operator in Indonesia. In 1972, it began a fortnightly service from Surabaya to Darwin. Its *HS748* aircraft fly by way of Bali and Kupang.

Polynesian Airlines, based in Apia, Western Samoa, operates *DC3* aircraft and, under a leasing arrangement, *HS748* aircraft to a number of Pacific Islands. It is owned by Air Pacific, Air New Zealand, and private business interests.

Qantas, Australia's international airline, is the oldest airline in the region. From a small two-plane operation founded in western Queensland in 1920, it has developed into one of the world's major international operators. It has a fleet of *Boeing 707-338C* and *Boeing 747-238Bs.* Qantas operates its world routes to London via Mexico, via the west coast of the United States, via Hong Kong, and via Singapore. It also operates flights to Japan, New Zealand, and South Africa. A flight across Asia and Europe to London, which took a leisurely nine days in 1938, can now be completed in just over 30 hours. Qantas has formed a subsidiary company, called *Qantair,* to meet the expanding competition in the charter business.

Singapore Airlines (SIA), owned by the Singapore government, is Singapore's own international airline. It was created after the break-up of Malaysia-Singapore Airlines.

Transportes Aereos de Timor (TAT) is a Portuguese airline based at Dili, Portuguese Timor. It operates local services with *de Havilland 104* aircraft. TAT also has rights to operate to Darwin, in Australia, and this service is operated on behalf of TAT by Trans Australia Airlines.

Domestic Services

As tourism has developed in the region, the demand for internal air transport has increased. Many areas formerly almost inaccessible have become tourist resorts because of domestic air services.

Australia has become the leader in the region. Its highly developed airline system has opened up the continent in a way not dreamed of by the pioneers. It is served by two major airlines on interstate routes and by a number of smaller airlines operating within various states.

The major operators are controlled by the Department of Civil Aviation under the *two airline policy,* which restricts air services between states to two competing airlines. One of these airlines, *Trans Australia Airlines* (TAA), is owned by the government. The other, *Ansett Airlines of Australia* (AAA), is privately owned. It is part of a large organization embracing road transport, television stations, and hotels. These two organizations operate over identical routes. They both have *Boeing 727s* and *DC9s* as their mainline fleets. There are some variations in the composition of the rest of their fleets. Both airlines operate between all the Australian capital cities and to Port Moresby.

Many of the intrastate airlines are subsidiaries of Ansett, but one New South Wales operator, East West Airlines, has remained independent. It is based at Tamworth, in New South Wales, and serves many country towns. East West also has permission to operate beyond state boundaries, but in a manner that does not compete with the two major airlines.

New Zealand has also developed a highly efficient domestic network. The principal operator is the government-owned *New Zealand National Airways Corporation* (NZNAC). It emerged from a takeover in 1945 of three private airlines. NZNAC operates *Boeing 737s, Vickers Viscounts,* and *Fokker Friendships.*

There are several smaller operators, notably Mount Cook Airlines, which serves the large tourist area of the South Island. Since 1971, Mount Cook has also operated to some tourist areas of the North Island.

Indonesia's two nationalized operators, *Garuda* and *Merpati Nusantara,* operate domestic services as well as international services. P.N. Merpati Nusantara links West Irian with Jakarta.

The Fijian operator Air Pacific provides domestic services within the islands of that group. Many of the small island nations have developed small air carrier companies such as *Air Melanesia,* which operates through the New Hebrides.

In Papua New Guinea, Trans Australia Airlines and Ansett Airlines of Australia provide the mainline connections to the southern capitals. Either directly, as in the case of TAA, or through subsidiaries, as in the case of AAA, they both provide local services in the territory.

Civil Aviation Administration

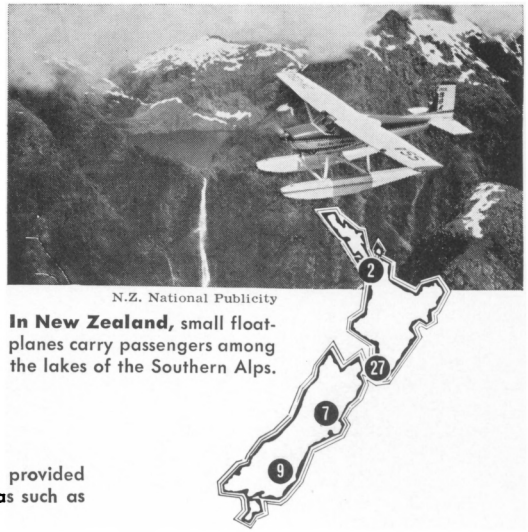
Civil aviation is administered generally by the governments of the region. Most of them have departments of civil aviation that are responsible for providing airports, navigational aids, and air traffic control; licensing aircraft and aircrews; setting and maintaining safety regulations; and negotiating international air agreements. These and similar topics are

Faaa Airport, in Tahiti, is an important refuelling stop on many transpacific flights. Tahitian dancers welcomed the first Qantas flight on the route, in 1964.

Qantas

MAJOR AIRPORTS IN AUSTRALASIA

1 ADELAIDE
2 AUCKLAND
3 BANDUNG
4 BRISBANE
5 CAIRNS
6 CANBERRA
7 CHRISTCHURCH
8 DARWIN
9 DUNEDIN
10 HOBART
11 JAKARTA
12 JESSELTON
13 KUALA LUMPUR
14 LAE
15 MAKASAR
16 MELBOURNE
17 MOUNT HAGEN
18 NADI
19 PENANG
20 PERTH
21 PORT MORESBY
22 RABAUL
23 SINGAPORE
24 SUVA
25 SYDNEY
26 TOWNSVILLE
27 WELLINGTON



N.Z. National Publicity

In New Zealand, small floatplanes carry passengers among the lakes of the Southern Alps.

TAA

In Papua New Guinea, aircraft have provided transport since the 1930s for remote areas such as Wau, a gold-mining centre.

derived from the International Convention on Aerial Navigation, held in Paris in 1919. Civil aviation administrators control and operate the airports generally throughout the region. In some places the facilities are shared with the military authorities as, for example, in Jakarta. Most nations now belong to the International Civil Aviation Organization (I.C.A.O.), which works to standardize all procedures at airports and on air routes. Its efforts have been extremely successful. Australia and New Zealand have seats on the council of the I.C.A.O., which has its headquarters in Montreal, Canada.

History

The first significant aeroplane flights were made in Australia in 1911, just eight years after man's first powered flight. Commercial aviation did not get under way in the region until after World I. The Australian government led the region. In 1919, it offered a prize of £10,000 for the first Australian crew to fly from England to Australia within 30 days. The Smith Brothers, with mechanics Wallace Shiers and James Bennett, landed in Darwin on Dec. 10, 1919, and won the prize. Their flight showed that international services were possible, but such services did not begin in the region until 1934. In that year, the Dutch airline KLM began operating from The Netherlands to the Dutch East Indies (now Indonesia) and Imperial Air Lines and Qantas began operating a joint service from London to Brisbane.

Charles Kingsford Smith and Charles Ulm joined a growing band of pioneer airmen trying to persuade people and governments alike that air services were practicable. They flew from Oakland, California, to Brisbane in 1928. Six years later, Kingsford Smith and P. G. Taylor made the first flight in the opposite direction, from Australia to the United States.

In 1937, Pan American Airways started a short-lived service to New Zealand. It was suspended when the *S42B Flying Boat* operating the third flight crashed. This service was restored in July, 1940, but was suspended again in December, 1941, on the outbreak of war in the Pacific. It operated in association with Tasman Empire Airways Ltd., which began the Trans-Tasman operation in April, 1940. The government of New Zealand owned 50 per cent. of the company, Australia 30 per cent. and Great Britain 20 per cent. Later, P. G. Taylor surveyed a route to Africa and several routes in the South Pacific. Qantas now operates one of these routes to Mexico.

Internal services in Australia began in 1912 when the government accepted Norman Brearley's tender for a weekly return service between Derby and Geraldton in Western Australia, for £ 25,000 a year. Brearley immediately assigned this contract to Western Australian Airways Ltd., which expanded in Western Australia and eventually to Adelaide. On the other side of the continent, Queensland and Northern Territory Aerial Services Ltd. (QANTAS) obtained a contract for a subsidized service between Charleville and Cloncurry, in Queensland, in November, 1922.

The first inter-capital service started in 1924 when Australian Aerial Services began a subsidized flight between Adelaide and Sydney. Then, in 1930, the ill-fated Australian National Airways founded by Kingsford Smith and Ulm began to link the east coast capitals without a subsidy. The company ceased operations in June, 1931.

In 1936, a number of smaller lines were merged to form a new Australian National Airways. It developed an Australia-wide network and later made a substantial contribution to Australia's war effort. Many small airline companies opened about this time, including Ansett Airways, a Victorian operator and later a major force in Australian air transport. By 1940, Australia had a useful network of services equal to those of any other country and far superior to any others in the region. Certainly the size of the island continent made it ideal for mail services and air transport generally. The isolation of many of its communities, the suitable climate, and the overall evenness of the continent with few mountains of notable height made it an ideal area for air transport development.

As for the rest of the region, only New Zealand and the Netherlands East Indies had made any progress. A number of smaller companies had operated over New Zealand until 1936 when the Union Steamship Company formed Union Airways. This airline, together with some smaller lines, provided a satisfactory network for this small, compact nation.

In the outpost of the Dutch Empire, the East Indies, there were no means of ready communication over the thousands of islands which were spread over an area as big as Europe. The Dutch saw the value of aviation and in 1928 granted a charter for a local airline, K.N.I.L.M., the forerunner of the present Garuda Airways.

The end of World War II saw the air transport industry poised for rapid expansion though the new vehicles were not yet ready. Using aircraft designed for war-time use, the airlines of the world rapidly recovered their pre-war positions and soon overtook them. New international operators appeared. For example, British Commonwealth Pacific Airlines began to operate from Australia and New Zealand to the United States and Canada. Some names took on new importance in the post-war period, such as the Australian pioneer Sir Gordon Taylor and Sir Leonard Isitt in New Zealand, whose activities in service aviation were now transferred to civil operations; Ivan Holyman of Australian National Airways; Hudson Fysh, one of the founders of Qantas; Lester Brain of Qantas and then Trans Australia Airlines; and Sir Reginald Ansett of Ansett Airlines of Australia.

A new philosophy was also developing. The Australian government in 1946 set up its own domestic airline, Trans Australia Airlines. In 1947, it bought the entire shareholding in Qantas Empire Airways Ltd. from its joint owners Queensland and Northern Territory Aerial Services Ltd., and British Overseas Airways Corporation.

Related Articles. See AIRLINE and AVIATION, in the main volumes, and their lists of related articles. See also the following articles in the Australasian volumes:

Agricultural Aviation
Aircraft Industry
Ansett, Sir Reginald
Fysh, Sir Hudson
Hargrave, Lawrence
Hart, W. E.
Hawker, Harry George
Hinkler, Bert
Isitt, Sir Leonard Monk
Kingsford Smith, Sir Charles
Smith (family)
Taylor, Sir Gordon
Ulm, Charles

The *Airtruk* was the first aircraft designed and built in Australia specially for work in agricultural aviation in Australian conditions.

Transavia Corporation

AIRCRAFT INDUSTRY. All the countries of Australasia have facilities for maintenance work on aircraft. But aircraft manufacturing is much less highly developed in these countries than in many countries in Europe and North America. No Australasian country can build the large airliners needed by its domestic or international airlines. The airlines buy most of their aircraft from Britain, France, The Netherlands, and the United States.

Australia has factories that build a wide range of small aircraft and their engines. Most of them are built *under licence*—that is, the manufacturers use designs produced in other countries, and pay the designer a fee to build the aircraft he has designed. Indonesia and New Zealand have aircraft manufacturing industries even smaller than that in Australia. Malaysia and Singapore build no aircraft, but Kuala Lumpur and Singapore airports are major servicing centres for airliners.

Australia has three factories for manufacturing aircraft. One of them is owned by the federal government. The others are privately owned. The largest are the government factory, which is controlled by the Department of Supply, and that of the Commonwealth Aircraft Corporation. This corporation was founded in 1936 by several leading companies in Australia and other countries.

The Government Aircraft Factory concentrates on building guided missiles and aircraft engines. The bulk of its work and that of the Commonwealth Aircraft Corporation is in the field of military aircraft. The two factories work together on many military contracts. An example of this co-operation was the production of *Mirage III* fighters for the RAAF in the 1960s. Both these factories are in Melbourne.

Only one of the smaller companies is Australian-owned. It designs and builds a range of agricultural aircraft. The other company is a subsidiary of a British company. It assembles and services aircraft designed by its parent company. Its main products are aircraft components. It also has a guided missile division.

In the early 1970s Australia had about 3,800 civil aircraft and had facilities for maintenance and repair work on all of them. The bulk of them were privately owned and charter aircraft. The manufacturers and their agents service these aircraft. The international and domestic airlines have their own servicing facilities. Kingsford Smith airport, in Sydney, and Tullamarine, in Melbourne, are the main servicing centres for airlines.

Indonesia has one aircraft factory, in Bandung. It is controlled by the government. It designs and builds gliders, light aircraft, and other military equipment needed by the Indonesian Air Force. It also has facilities for repair work. But Garuda Indonesian Airways has to send many of its jet aircraft to other countries for servicing.

New Zealand has two aircraft manufacturers. One, established in 1954, now produces a range of all-metal aircraft that was formerly made in Australia. The other manufactures an American-designed agricultural and general utility aircraft. New Zealand's airlines operate aircraft imported mainly from Britain, The Netherlands, and the United States. The main servicing facilities are at Rongotai airport, in Wellington, and Mangere, in Auckland.

Related Articles in World Book include:

Main Volumes	Australasian Volumes
Airline	Air Transport
Airplane	Agricultural Aviation
Aviation	Jindivik

AIRLANGGA (990-1049), a semi-legendary Indonesian hero, built up a strong kingdom in eastern Java. He became king in 1019. From 1027 to 1037, he conquered central and eastern Java. About 1040, he built the capital city of Kahuripan in eastern Java. Historians have not been able to establish its exact location. The fame of this capital spread throughout south-eastern Asia.

Airlangga was born in Bali. His mother was a descendant of Mpu Sindok, a Hindu-Javanese ruler of eastern Java during the early 900s. As a youth, he lived in hiding during a period of Sumatran attacks on Java. During this period, he learnt self-denial and self-control. According to legend, he also learnt the secrets of magical power that helped him in conquering his kingdom. Finally, he was recognized as crown prince of the kingdom of eastern Java and re-established the kingdom. Before his death, Airlangga divided his kingdom between his two sons. The two parts became the kingdoms of Djanggala and Kediri. Airlangga was buried at Belahan (now Kediri). Historians know of these details of his life from an inscription known as the *Calcutta Stone*.

AISHAH GHANI (1924-), a Malaysian woman journalist and politician, was appointed to the Malaysian senate in 1963. She was the first woman to gain this status. Aishah Ghani was born in Selangor, and was educated at various Malay schools in that state. After studying journalism in Britain, she returned to Malaya to join the staff of *Berita Harian,* a Malay newspaper. Later, she was a member of Kaum Ibu, a women's group attached to the United Malays National Organization.

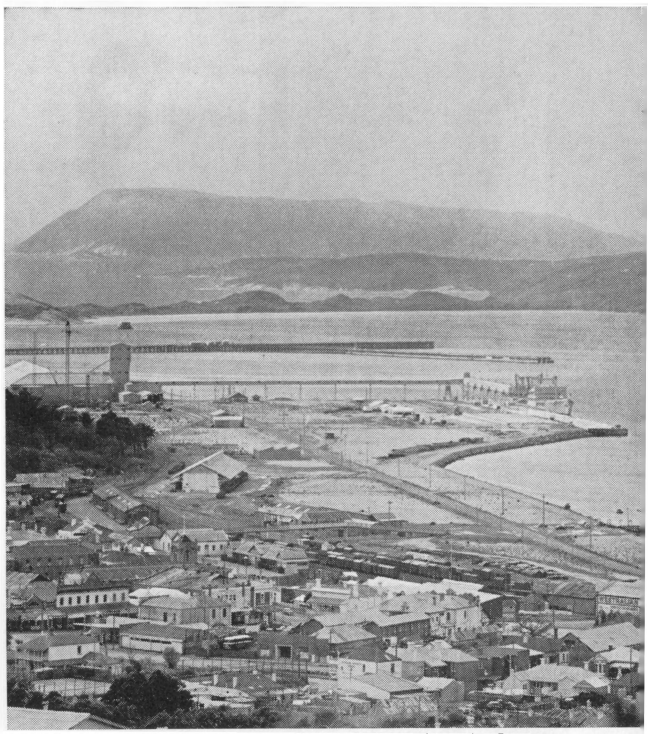
AITUTAKI. See COOK ISLANDS in this volume.

AKAROA (pop. 638) is a town on Banks Peninsula on the eastern coast of the South Island of New Zealand (see BANKS PENINSULA in this volume). It is a popular tourist resort, and is in the centre of a prosperous sheep and beef cattle farming area. It is also the base for a commercial fishing fleet.

In 1840, a French organization, the Nanto-Bordelaise Company, planned to establish a French settlement at Akaroa. But British government authorities forestalled the French, taking formal possession of the South Island on Aug. 10, 1840. French immigrants arrived in the area nine days later. Today, many of the people of Akaroa are descendants of French settlers. A few old wooden houses in the town, designed in French styles, still survive.

ALBANY (pop. 12,434) is a town and port in the south-west of Western Australia. It is situated on King George Sound, about 400 kilometres (250 miles) south of Perth. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume.

The port of Albany has one of the finest natural harbours in Australia. It handles exports of wheat, fruit, meat, dairy produce, and timber from the surrounding countryside. Whaling is the oldest industry in Albany, and a local company still operates catcher boats and has a whaling station near the town. Albany also has wool mills, a meat-processing works, a fish cannery, a fertilizer factory, and facilities for storing and handling wheat in bulk.



Australian News and Information Bureau

Albany was the site of the first European settlement in Western Australia. It has a magnificent natural harbour.

The British explorer George Vancouver (1758-1798) first sighted and charted the harbour of Albany in 1791, and named it Princess Royal Harbour. In 1826, Major Edmund Lockyer (1784-1860) established the first settlement in Western Australia at Albany. The town developed rapidly after World War II, and became a municipality in 1961.

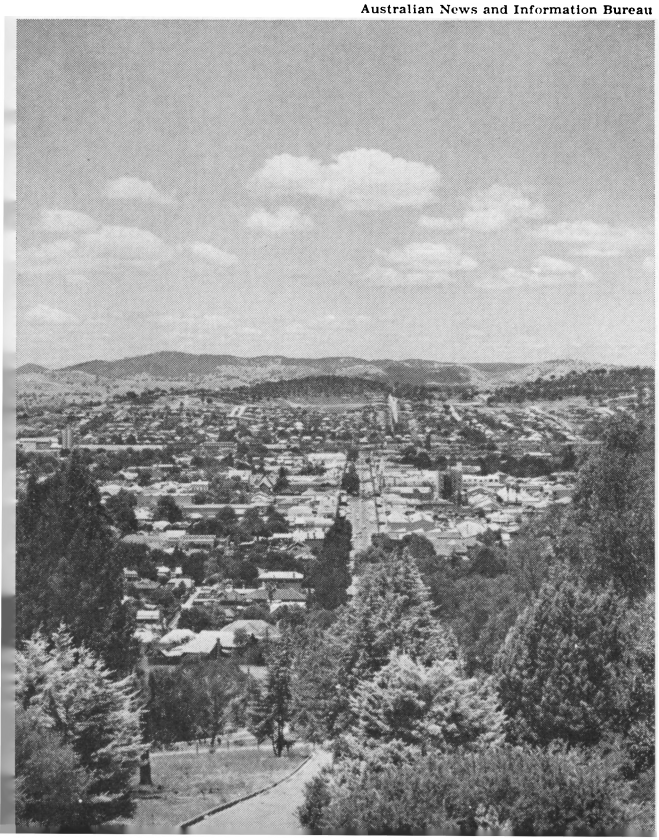
ALBURY is a city in New South Wales on the banks of the Murray River. Albury and the adjoining town of Wodonga, which is across the Murray in Victoria, together have a population of 37,916. Five major highways meet at Albury. The Hume Highway and the Southern Railway between Sydney and Melbourne cross the Murray at Albury. The city is linked by road, rail, and air to Sydney, Melbourne, Canberra, and other centres.

Albury is the marketing centre for the 110,000 people who live in the district. The district produces dairy products, honey, fat stock, forest products, poultry, wheat, and wool. The city's factories make clothing, electrical and electronic equipment, engineering products, fibrous plaster, flour and rolled oats, joinery, and woollen goods.

In 1824, the explorer Hamilton Hume forded the Murray River at the place where Albury now stands. Albury became a municipality in 1859. It was proclaimed a city in 1946.

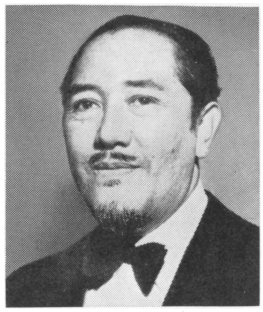
Albury, on the border between New South Wales and Victoria, is the centre of a rich farming district.

Australian News and Information Bureau



New Zealand Herald

Sir Ronald Algie



Associated Press

Ali Sastroamijoyo

ALGIE, SIR RONALD (1888-), a leading New Zealand politician, was speaker of the House of Representatives from 1961 to 1966, when he retired from politics. He was member of parliament for the electorate of Remuera for more than 20 years. Experts regarded him as one of the most skilled debaters in the House. He was born at Wyndham, in Southland. In 1919, he joined Auckland University College as a lecturer in law and later became professor of law. He resigned in 1937 to organize a political association opposed to the Labour government. He entered parliament in 1943 and was minister of education from 1949 to 1957.

ALGINATE INDUSTRY produces sodium alginate, a substance used in processed foods and industrial products. Sodium alginate is produced from ocean seaweed. It is a fine, cream-coloured powder which forms a thick, sticky solution when combined with certain salts. Sodium alginate is used in making wines, syrups, jellies, and bakery and dairy products. It is also used in manufacturing adhesives, ceramics, explosives, and paint.

The alginate industry was established in Australia in 1963. It is centred in Tasmania, because the giant kelp plant used to produce sodium alginate grows off the island's eastern coast.

ALI SASTROAMIJOYO (1903-), chairman of the Indonesian Nationalist party (PNI) from 1946 to 1966, served two terms as prime minister of Indonesia between 1953 and 1957. He served as first deputy chairman of the Provisional People's Consultative Assembly (MPRS), with the rank of coordinating minister until June, 1966.

Ali was born in Java. He studied law in The Netherlands, where he was one of the leaders of the Indonesian Students' Association. The Dutch arrested him in 1927 because of an extremely nationalistic article published in the association's magazine *Indonesia Merdeka* (*Free Indonesia*). After much controversy in Indonesia and The Netherlands, the Dutch released him.

On his return to Indonesia, he helped Sukarno found the PNI. He and Sukarno became close friends. The PNI pressed for immediate independence. During Indonesia's struggle against the Dutch, from 1945 to 1949, Ali held the post of minister of education in successive republican cabinets. He also helped to form a new party, also called the PNI.

In 1948, he was vice-chairman of the Indonesian delegation that took part in negotiations with the Dutch. These negotiations resulted in a temporary agreement. When this agreement broke down, the Dutch captured Ali Sastroamijoyo and other cabinet members in Yogyakarta. They took them to the island of Bangka, off Sumatra, but had to release them. Ali took part in the final conference with the Dutch. After independence, he was Indonesian ambassador to the United States for some time, and also served temporarily in Canada. He re-entered active politics as the head of the PNI.

ALICE SPRINGS (pop. 11,118) is a town in the Northern Territory. It is 1,500 kilometres (930 miles) south of Darwin and 1,650 kilometres (1,025 miles) north of Adelaide. It lies on the banks of the Todd River at about 580 metres (1,900 feet) above sea level. For location, see NORTHERN TERRITORY (map) in the other Australasian volume. The town has road, rail, and air links with Adelaide and road and air links with Darwin.

Alice Springs has between 20 and 25 centimetres (8 and 10 inches) of rain a year. Farmers and

Photographic Library of Australia

Alice Springs can be viewed from the Macdonnell Ranges which lie near the town. "The Alice", as it is popularly called, is a tourist resort and a commercial centre.

All Blacks, the New Zealand rugby union team, are famous for the vigorous play of their forwards, which has brought them success in many international matches.

New Zealand Herald

pastoralists use water from subartesian bores for crops and cattle. Market gardeners grow citrus fruits and dates in the Alice Springs area. The town is the supply depot for cattle stations, mines, and Aboriginal settlements in the central area of Australia. Natural resources in the area include natural gas and Australia's only deposits of mica.

In addition to being an important commercial centre, Alice Springs is also a popular tourist resort. Nearly all of the 28,000 tourists who visit the Northern Territory each year go to Alice Springs. From the town, tourists travel to visit the Three Tors—Ayers Rock, Mt. Connor, and Mt. Olga (see AYERS ROCK in this volume). With Alice Springs as a centre, tourists can also visit the Devil's Marbles near Tennant Creek, Simpson's Gap, Standley Chasm, and Palm Valley. A popular trip for tourists is the flight with the postman to remote cattle stations and Aboriginal settlements.

The author Nevil Shute made Alice Springs world famous when he published the novel *A Town Like Alice*. This story was later made into a film.

The town has a large aboriginal community. Several art stores in Alice Springs sell paintings by artists of the Aranda tribe, including Albert Namatjira's three sons.

An 8-tonne rock at Alice Springs forms a memorial to John Flynn, a Presbyterian missionary. There is also a church dedicated to him. The Royal Flying Doctor Service, which he helped to establish, has a base at Alice Springs.

In 1860, the explorer John McDouall Stuart visited the geographical centre of Australia. Alice Springs, laid out in 1888, was originally named after him. In 1933, the name was changed to honour Alice Todd. Her husband, Charles Heavitree Todd, completed the overland telegraph line from Port Augusta to Darwin in 1872. The Todd River bears his name.

See also AUSTRALIAN INLAND MISSION and FLYING DOCTOR SERVICE in this volume.

ALIMIN PRAWIRODIRJO (1889-1963) was one of the leading communists in Indonesia. During the 1920s, he was prominent in the Indonesian Communist party (PKI). He was blamed for the failure of the communist revolts in 1926 and 1927. He left Indonesia and worked as a communist agitator in many countries between 1927 and 1946. He then returned to Indonesia and helped to reorganize the Communist party. He led the party until 1954, when D. N. Aidit replaced him as secretary-general. He was born in Java.

ALL BLACKS are New Zealand's national rugby union team. They play in black jerseys, shorts, and socks. They are among the world's finest rugby union teams and regularly play international matches against sides representing Australia, England, France, Ireland, Scotland, South Africa, Wales, and the British Isles.

In the late 1800s and the early 1900s, several New Zealand national teams toured countries such as Australia and Britain. In 1888 and 1889, a New Zealand team toured the British Isles. This team—which lost only 23 out of the 108 games it played—was called the *Black and Golds,* after the colour of its jerseys and shorts. The name *All Blacks* was first applied to the New Zealand team that visited the British Isles, Canada, and France in 1905 and 1906. The team had a most successful tour, especially of the British Isles, where it lost only 1 out of the 33 games it played.

See also RUGBY UNION in the other Australasian volume.

ALLEN, W. D. See ARTS OF NEW ZEALAND (Sculpture) in this volume.

ALLIANCE, THE. See POLITICAL PARTIES OF MALAYSIA (Main Parties) in the other Australasian volume.

ALOR STAR. See KEDAH in this volume.

ALP. See POLITICAL PARTIES OF AUSTRALIA (Main Parties) in the other Australasian volume.

ALUMINIUM INDUSTRY

ALUMINIUM INDUSTRY has grown so rapidly since the early 1950s that Australasia has emerged as a region of great significance in aluminium production. Australia, in particular, has had an aluminium boom ever since some of the world's largest deposits of *bauxite* (the ore from which aluminium is extracted) were discovered, beginning in 1955. Experts estimate that Australia has reserves of bauxite suitable for the production of aluminium amounting to over 5,080 million tonnes.

Australia began to establish aluminium smelting facilities to exploit these vast reserves in the 1950s. By the mid-1970s, three plants had been built with a combined annual productive capacity of 232,664 tonnes of aluminium. These plants produce aluminium for Australia's own domestic requirements and for export.

Indonesia and Malaysia each mine bauxite, but on a smaller scale than Australia. They export all the ore. Some small deposits of bauxite have been discovered in the Northland area of New Zealand, but it seems unlikely that they are large enough to be worth developing.

Where Bauxite Is Found

Aluminium never occurs free in nature. It is normally found as an oxide combined with other elements. Almost any handful of soil contains some aluminium oxide, but, except in bauxite, it is not usually sufficiently concentrated to make mining economical. Most of the world's major bauxite deposits are in tropical areas, including northern Australia. Less extensive, but still important, deposits are found in areas outside the tropics, including south-western Australia.

Australia. The main Australian bauxite fields, in order of importance, are at Weipa on the western coast of Cape York Peninsula, in Queensland; at Gove in the Arnhem Land area of the Northern Territory; in the Darling Ranges, east of Perth, in Western Australia; and on the Mitchell Plateau, near Admiralty Gulf in the far north of Western Australia. Weipa contains reserves of about 2,540 million tonnes. The deposit at Weipa is the largest single deposit of bauxite known in the world. Gove has 254 million tonnes, the Darling Ranges 1,016 million tonnes, and Admiralty Gulf region 203 million tonnes.

Bauxite mining is relatively simple. Bulldozers remove a layer of top-soil—usually a thin layer—and miners use mechanical equipment to dig the ore out of open cuts in the earth. The bauxite occurs in a pebble form at Weipa and as a rock in the Darling Ranges. The bauxite is washed and crushed, and is then ready for shipment. Australia produces about 25 million tonnes of bauxite a year. Australian plants process about two-thirds of the bauxite. One-third is exported, principally to Japan and Europe.

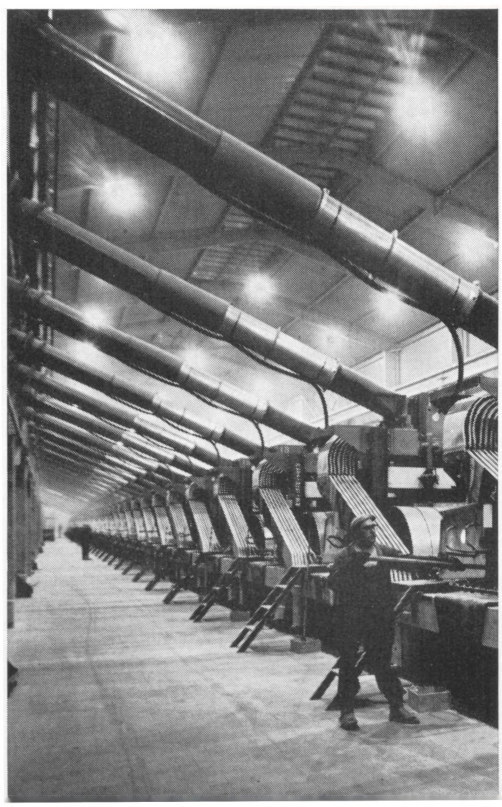
Indonesia has reserves of bauxite estimated at about 50 million tonnes. The main mining operations are on the island of Bintan, near Singapore. Other islands in the Riouw Archipelago and in Sumatra produce about 1,220,000 tonnes of bauxite a year.

Malaysia. Bauxite is found in the state of Johore in southern Malaya and in the south-western part of Sarawak. The country has estimated reserves of about 30 million tonnes, and produces more than 1 million tonnes of ore every year.

Making Aluminium

Producing aluminium is a two-stage process. In the first stage, bauxite goes through a chemical

Smelting Furnaces at Bell Bay, in Tasmania, reduce alumina to aluminium electrolytically. The plant produces more than 70,000 tons of aluminium each year.



Bulk Carriers load bauxite at Weipa, on the Gulf of Carpentaria. More than 3 million tons of ore were exported in 1970, mainly to Japan and Europe.

State Public Relations Bureau, Queensland; Comalco Aluminium

treatment refinery to convert the aluminium oxide in the ore to a pure form. In the second stage, the pure aluminium oxide is reduced to metal by electrolysis. Four tonnes of bauxite yield 2 tonnes of *alumina* (aluminium oxide), which in turn yield 1 tonne of aluminium.

Extracting Alumina. Pure alumina is obtained by grinding the bauxite finely and dissolving it in a solution of hot caustic soda. The alumina in the bauxite combines with the caustic soda, and impurities are removed by filtering or settling. The solution is cooled. Crystals of alumina are added to the saturated solution, and the alumina in the solution crystallizes on them. The alumina is recovered from the bottom of precipitating tanks and dried in revolving kilns. The product is a fine white powder.

Australia has five alumina plants: at Kwinana, with an annual capacity of 1 million tonnes a year; at Gladstone, 2 million tonnes; at Pinjarra, 700,000 tonnes; at Gove, 1 million tonnes; and at Bell Bay on the northern coast of Tasmania, with an annual output of 60,000 tonnes.

Smelting. The reduction of alumina to aluminium metal takes place in an electric furnace. The alumina is dissolved in molten *cryolite* (sodium aluminium fluoride), and electricity is passed through a number of carbon anodes suspended in the furnace. By electrolysis, the aluminium collects in molten form at the bottom of the furnace, and the oxygen combines with the carbon to be given off as waste gases. The molten metal is siphoned from the furnace and cast into ingots.

Aluminium smelting requires large amounts of low-cost electricity. Indonesia and Malaysia lack large power stations, and thriving aluminium industries have not developed. Another limiting factor is the small demand for aluminium in Indonesia and Malaysia. The bauxite production of both countries is almost entirely exported for aluminium production in other parts of the world. Indonesia has plans for a small smelter and alumina plant on Sumatra with an annual capacity of 18,000 tonnes of metal.

Three smelting plants meet Australia's requirements for aluminium ingots. One, at Bell Bay, has an annual capacity of 94,000 tonnes of metal. The second, at Geelong, in Victoria, is rated at 90,000 tonnes annual capacity. The third smelter, at Kurri Kurri in New South Wales, has an annual capacity of 50,000 tonnes. An Australian-Japanese company has established a large smelter at Bluff in the South Island of New Zealand. It has a capacity of 112,000 tonnes. The smelter uses alumina from Australia. It draws electricity from a station at Lake Manapouri.

Semi-Fabrication. After being cast into ingots, aluminium undergoes further processing to be made suitable for use in end products. The main additional processes are rolling and extruding to provide materials such as sheet, plate, foil, and extruded sections. The Australian semi-fabrication industry includes three rolling mills in Sydney and one at Geelong. New South Wales has five extruding works and Victoria four. One is under construction in Western Australia.

New Zealand has one plant for producing rolled products, and three for extruded products. Indonesia and Malaysia each have one small rolling mill.

Fabrication. The fabrication industry converts aluminium ingots and rolled or extruded products into a wide variety of end products. These include castings, electric cable, building products, and transport equipment. Many firms in Australia and New Zealand produce such end products. Indonesia and Malaysia also have a few similar plants.

Using Aluminium

Australian users consume about 137,000 tonnes of aluminium a year. The figure was 38,100 tonnes in 1960. About 25 per cent. of Australia's aluminium goes into building products, such as roofing, curtain walls for large buildings, window frames, and house siding. About 20 per cent. goes to the transport industry, for road and rail equipment, boats, and aircraft, and 20 per cent. to the electrical transmission industry. About 12 per cent. goes into household goods, and 12 per cent. to packaging.

In 1972, Australia exported about 95,000 tonnes of aluminium ingots. The ingots were shipped to most parts of the world. Exports declined as local demand grew in the 1960s but rose with the expansion of production capacity after 1970.

History

Indonesia and Malaysia began to develop their bauxite resources fully after World War II. Both countries supplied bauxite to Australia from 1955, when Australia's first aluminium smelter began production, until 1962 and 1963, when mining began at Weipa and in the Darling Ranges. The United States bought large amounts of Indonesian bauxite between 1949 and 1951, but then turned increasingly to Jamaica for its supplies.

Australia's first aluminium smelter was established at Bell Bay by the federal and Tasmanian governments in partnership. The federal government has since sold its share to a private company. The decision to build a smelter was based on strategic considerations. Australia had had difficulties in obtaining aluminium during World War II. The discovery of the deposit at Weipa, at about the time the Bell Bay plant was completed, transformed the economics of the Australian industry and its position in the world aluminium market.

The explorer Matthew Flinders had noted the reddish cliffs when voyaging around Cape York in 1800. In 1947, F. W. Whitehouse collected samples of good grade bauxite at the mouth of the Archer River. Further samples taken in the area happened to be of a low grade, and no further investigations were made. H. J. Evans, a geologist working for Consolidated Zinc Pty. Ltd., discovered the deposits at Weipa in 1955 while searching for oil.

An aluminium company was granted a lease covering the bauxite deposits of the central portion of Gove Peninsula in 1965. The company built the town of Nhulunbuy to house the workers on the project.

See also ALUMINUM in the main volumes; AUSTRALIA (map) and GOVE PENINSULA in this volume; NORTHERN TERRITORY, QUEENSLAND, and WEIPA in the other Australasian volume.

D. W. Evans

Ambon is the capital of the Moluccas. It is a port and a market centre for spices and other agricultural produce.

AMADIO, JOHN (1886-1964), a flautist, first won acclaim for his playing with the Wellington Orchestral Society when he was only 11 years old. At the age of 14, he became solo flautist with the J. C. Williamson Grand Opera Company. He went on to achieve fame in Europe and the United States. In 1940, he successfully toured the United States, then settled in Britain during World War II. In 1947, he toured Australia as a guest of the Australian Broadcasting Commission. Amadio was born at Christchurch, in New Zealand. He married the opera singer Florence Austral in 1925 (see AUSTRAL, FLORENCE, in this volume).

AMANGKUBUWONO. See HAMENGKU BUWONO in this volume.

AMANGKURAT is the name of four Javanese kings who ruled from 1646 to 1726.

Amangkurat I (? -1677) was the son and successor to Sultan Agung, ruler of the central Javanese kingdom of Mataram (see AGUNG, SULTAN, in this volume). He ruled from 1646 to 1677, extending his kingdom by conquering the northern coast of Java. He made a peace treaty with the Dutch East India Company.

Amangkurat II (? -1703) ruled from 1677 to 1703. He conceded much power to the Dutch East India Company in return for Dutch help in putting down rebellions that threatened his rule.

Amangkurat III (? -1733) was disliked by the Dutch. They supported his uncle Pangeran Puger as ruler instead of him. The two rulers went to war from 1705 to 1708. The war ended when Amangkurat III was captured and exiled to Ceylon. He died there.

Amangkurat IV (? -1726), the son of Pangeran Puger, ruled from 1719 to 1726. He was opposed by his uncle Pangeran Aria Mataram. The Dutch intervened to stop a war between them in 1723.

AMBENO. See TIMOR, PORTUGUESE, in the other Australasian volume.

AMBO, GEORGE SOMBOBA (? -) was consecrated in 1960 as the first Papuan assistant bishop of New Guinea. He was ordained in the Anglican Church in Papua. He was born at Gona, and was educated at St. Aidan's College, in Dogura.

AMBOINA MASSACRE. See HISTORY OF INDONESIA (The Dutch East India Company) in this volume.

AMBON (pop. 55,263) is the capital and largest town of the Indonesian province of the Moluccas. It is the main port and town on the island of Ambon. Both the town and the island are sometimes called *Amboina.* The town is located on the southern side of Ambon Bay, which almost divides the island in two. In the 1600s and 1700s, Ambon was a centre of the spice trade, and an important Dutch trading post. Spices, such as cloves and nutmeg, are still among Ambon's main exports, but the port also exports copra, fruit, vegetables, and wool.

AMBON, an island in Indonesia, is part of the Moluccas. The island lies in the Banda Sea, about 16 kilometres south of the island of Ceram. For location, see INDONESIA (colour maps) in this volume. Ambon Bay nearly divides Ambon in two. The two parts are called Hitu and Laitimor. The island has a total area of about 813 square kilometres.

About 85,000 people live on Ambon and the small islands of Lucipara and Penju that lie nearby. The Portuguese converted many of the people to Roman Catholicism. Islam later spread to the island. Later still, the Dutch introduced Protestantism. Today, Muslims, Roman Catholics, and Protestants live together on the island.

AMIR SJARIFUDDIN (1905-1948) was prime minister of Indonesia from July, 1947, to January, 1948. He was captured and executed after taking part in a communist rebellion in Madiun against the Indonesian government in 1948. Amir Sjarifuddin was born at Medan, in northern Sumatra. He studied law in The Netherlands. In the 1930s, he returned to Indonesia and joined the nationalist movement. He also became a Christian. In 1937, he founded and led a party called *Gerindo* (Indonesian People's Movement). This party had many left-wing members but urged cooperation with the Dutch against the threat of Japanese expansion. After World War II, he founded the Parsi party.

Amir Sjarifuddin
Foto Deppen

AMPHIBIANS in Australasia include nine *families* (groups) of frogs and toads and three *species* (kinds) of coecilians—worm-like, burrowing amphibians that have no limbs.

Agile, active hylid tree frogs (*Hylidae*) are common in Australia and New Guinea and have been introduced into New Zealand from Australia. They have sticky disks on their toes with which they can climb. The green tree frogs (*Hyla caerulea*) of Australia and New Guinea grow to about 5 inches long. They are bright emerald green. A distinct group of hylid tree frogs lives in New Guinea and north-eastern Australia. They have patterns of gold, silver, or black lines on their eyelids.

About 70 kinds of southern frogs (*Leptodactylidae*) live in Australia and New Guinea. They are found elsewhere only in South America and Africa. In Australia, they live in the area from the rain forests of the eastern coasts to the central deserts. Two of the best-known species of this group are corroboree frogs (*Pseudophryne corroboree*) and water-holding frogs (*Cyclorana platycephalus*). Corroboree frogs are about an inch long, with bold patterns of black and yellow stripes. They live in the highlands of south-eastern Australia. Water-holding frogs live in the dry inland areas. They burrow deep into the mud below temporary pools of water and make cavities there in which they spend the next dry period. The Australian Aborigines search for these frogs for food and water.

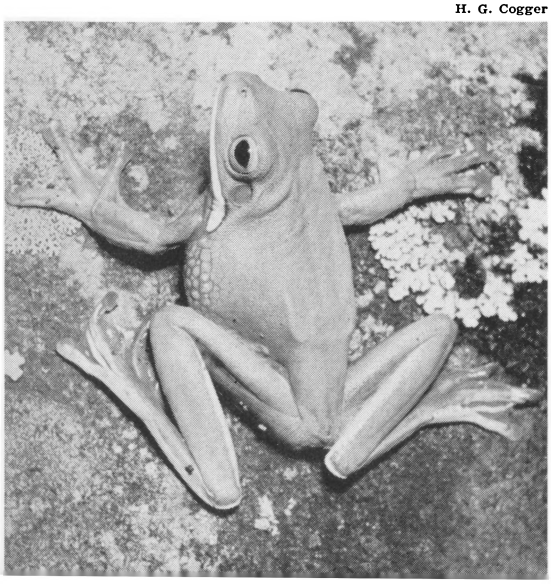
The ordinary, or typical, frogs (*Ranidae*) live in most parts of the world. They are common in Indonesia, Malaysia, New Guinea, and the Solomon Islands. But only one species is found in Australia. They have irregular brownish markings. Most of them are only 5 to 8 centimetres in length.

Narrow-mouthed frogs (*Microhylidae*) are found throughout Indonesia, Malaysia, and New Guinea. A few species also live in north-eastern Australia. Most of them are dull-coloured frogs.

New Zealand has only two species of native frogs. Both of them belong to the family of tail-muscled frogs (*Leiopelmidae*). They are small and rather dull in colour. They have a number of structures that suggest that they are the most primitive of all living frogs. These structures include two tail muscles, but no tail. These frogs lay a few large eggs in moist soil. The tadpoles feed on the egg yolk, and complete their growth and development inside the eggs. Tiny but fully formed frogs hatch from the eggs.

Northern Green Tree Frog

H. G. Cogger



The true toads (*Bufonidae*) are found throughout most parts of the world. They occur naturally in Indonesia and Malaysia, but not in Australia, New Guinea, and the islands farther east. The tadpoles of some Indonesian toads are able to live in fast-flowing streams. Marine toads (*Bufo marinus*) of South America have been introduced into Fiji, New Guinea, and north-eastern Australia to control pests that damage sugar-cane and other crops.

The most common of the three species of coecilians in Australasia are sticky coecilians (*Icthyopus glutinotus*). They are found in Borneo, Sumatra, and Java. They are dark brown or blackish, with narrow, bright yellow bands along each side of their bodies. Their tentacles are white and their beady black eyes are ringed with light brown. They usually live in the muddy banks of streams.

See also AMPHIBIAN in the main volumes.

ANARE. See ANTARCTIC RESEARCH in this volume.

ANDAMOOKA is an opal-mining settlement in central South Australia, about 130 kilometres from Woomera. It has about 200 houses, and a floating population varying between 1,000 and 2,000. Opal miners work over an area of about 52 square kilometres on the Arcoona plateau, in shafts up to 18 metres deep, large bore-holes, open-cut excavations, and small tunnels, using a wide variety of machinery and hand tools.

Opal was first discovered at Andamooka in 1930. The largest crystal opal found in Australia was found at Andamooka by four miners in 1969. It weighed 220 ounces and was valued at $A168,000.

ANDERSON, JOHN (1893-1962), was Challis professor of philosophy at Sydney University from 1927 to 1958. He and his pupils showed more independence of philosophical thought of other countries than any other group in Australia had ever done before. His ideas on education, politics, art, and religion made him the centre of many controversies. He opposed censorship with great vigour. He was born in Scotland, and settled in Australia in 1927.

ANDERSON, DAME JUDITH. See ANDERSON, DAME JUDITH, in the main volumes.

ANGAS, GEORGE FIFE (1789-1879), was a philanthropist and one of the founders of South Australia. He was born at Newcastle-upon-Tyne, in England. He formed the South Australian Banking Company in 1841, and moved to South Australia in 1851. He took an active part in the public affairs of the colony, sitting on the Legislative Council until 1866.

ANIMALS. See ANIMAL in the main volumes with its list of related articles. The Australasian volumes include articles on animals native to the area and on introduced animals. See AMPHIBIANS; BIRDS; BUFFALOES; BULLOCK TEAMS; CAMELS; FISH; FOXES; and INSECTS in this volume; MAMMALS; MARSUPIALS; MONOTREMES; PIGS; REPTILES; SHARKS; and SPIDERS in the other Australasian volume.

ANNIVERSARY DAYS. Every year, each New Zealand province has a holiday to celebrate the anniversary of its foundation. In Auckland province, the anniversary day is January 29; in Canterbury, December 16; in Hawkes Bay and Marlborough, November 1; in Nelson, February 1; in Otago and Southland, March 23; in Taranaki, March 31; in Wellington, January 22; and in Westland, December 1.

ANSETT, SIR REGINALD (1909-), an airline owner and transport company operator, greatly contributed to the development of civil aviation and road transport in Australia. He was born at Inglewood, in Victoria, and was named REGINALD MYLES ANSETT. He was educated at Swinburne Technical College in Melbourne.

Australian News

Sir Reginald Ansett

He entered the transport business in 1935. He later founded Ansett Transport Industries Ltd., and developed it into a multi-million dollar enterprise. In 1957, he became chairman and managing director of Ansett-ANA.

ANSETT-ANA. See AIR TRANSPORT (Domestic Services) in this volume.

ANTARCTIC RESEARCH. Australia and New Zealand maintain research stations in their Antarctic territories. Scientists at these stations study many aspects of Antarctica. They also study oceanography and meteorology from Antarctic bases, as well as cosmic radiation and the Earth's magnetism.

Australia supports four scientific research stations in Antarctica—a station on Macquarie Island; Mawson Station, on MacRobertson Land; Davis Station, on the coast of Princess Elizabeth Land; and Wilkes Station, in Vincennes Bay. At Wilkes Station, American and Australian scientists co-operate in research programmes. New Zealand supports two bases in the Ross Dependency—Hallett Station, which it shares with the United States, and Scott Base.

Christchurch is the main base for *Operation Deep Freeze,* the American research project in Antarctica. The Australian National Antarctic Research Expedition (ANARE) was founded in 1947 to establish stations in the Australian Antarctic Territory for research and exploration. During its first expedition, ANARE set up weather stations on Heard and Macquarie islands. P. G. Law led expeditions in 1954 and 1957 that established Mawson and Davis stations.

A New Zealand expedition, led by Sir Edmund Hillary, established Scott Base in January, 1957. In the same month, a joint American and New Zealand expedition established Hallett Station. The Antarctic division of the Department of Scientific and Industrial Research, founded in 1959, controls New Zealand research in the Ross Dependency.

See also HILLARY, SIR EDMUND, and WILKINS, SIR HUBERT, in the main volumes; DAVID, SIR T. W. E., and LAW, PHILIP GARTH, in this volume; MAWSON, SIR DOUGLAS, in the other Australasian volume.

ANTARCTIC TERRITORIES. Australian and New Zealand are among the countries that claim parts of the Antarctic continent. Australia claims two areas, calling them the *Australian Antarctic Territory.* New Zealand calls its area the *Ross Dependency.* For locations, see ANTARCTICA (colour map) in the main volumes; AUSTRALIA (colour map) in this volume; NEW ZEALAND (colour map) in the other Australasian volume.

ANTHONY, DOUGLAS (1929-), became leader of the Australian Country Party and minister for trade and industry in 1971. He served as deputy prime minister of Australia in 1971 and 1972.

JOHN DOUGLAS ANTHONY was born at Murwillumbah, in New South Wales. He was educated at The King's School, Parramatta, and at Gatton Agricultural College, in Queensland, where he gained a diploma of agriculture. He became a member of the House of Representatives for Richmond, New South Wales, in 1957. He became a member of the executive council in 1963 and served as minister for the interior from 1964 to 1967 and minister for primary industry from 1967 to 1971.

ANTHROPOLOGY, the scientific study of man, has become an extremely important and widely developed science throughout Australasia. Specialists in all branches of anthropology have worked together in Australasia to study the histories and cultures of the peoples of the region. They include the British anthropologist Bronislaw Malinowski, who worked among the Trobriand Islanders; the American anthropologist Margaret Mead, who developed theories about culture and personality in Samoa, New Guinea, and Bali; and the New Zealand historian Elsdon Best and the New Zealand anthropologist Roger Duff, who greatly increased understanding of the Maoris. See MALINOWSKI, BRONISLAW, and MEAD, MARGARET, in the main volumes; DUFF, ROGER SHEPHERD, in this volume.

From the 1920s onwards, such scholars as A. P. Elkin and Sir Alfred Reginald Radcliffe-Brown began to study the life of the Aborigines, making field-studies and using systematic scientific methods. Today, Australians know much about the culture and history of these people.

See also ANTHROPOLOGY, with its list of related articles, in the main volumes.

ANTILL, JOHN (1904-), an Australian composer, is best known for his ballet suite *Corroboree,* first performed in 1946. He based his composition on tunes he had heard Aborigines singing in the La Perouse reserve, in Sydney. He studied composition with Alfred Hill at the New South Wales State Conservatorium of Music, and joined the music staff of the Australian Broadcasting Commission in 1934. Antill also composed another ballet, choral and orchestral works, and theatre and film music. He was born in Sydney.

ANTS. See INSECTS in this volume.

ANZAAS. See AUSTRALIAN AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE in this volume.

ANZAC, the Australian and New Zealand Army Corps, was a combined force of Australian and New Zealand volunteer soldiers formed in Egypt during World War I. This force of about 30,000 men took part with other Allied forces in a landing on the Gallipoli Peninsula on April 25, 1915. During the next eight months, the Australian and New Zealand soldiers gained a reputation for bravery and skill in fighting against Turkish forces on the peninsula.

The Gallipoli landing was at the time the largest military landing in history. It involved about 75,000 officers and men from Australia, Britain, France, and New Zealand. The main Allied force landed at the tip of the peninsula. The Anzacs landed at Gaba Tepe, more than 16 kilometres (10 miles) farther north, in an area later called *Anzac Cove*. On the first day, 16,000 Anzac troops went ashore. More followed later. The Allied forces—especially the Anzacs—suffered severe casualties during the landings. The Anzacs fought with great courage, especially during the capture of the Turkish strongpoint at Lone Pine. Turkish troops were firmly entrenched on the peninsula. Both sides suffered from disease. Finally, neither the Allies nor the Turkish forces made great gains. In December, 1915, the Allied high command ordered a withdrawal from Gallipoli. The campaign had failed. But the withdrawal that month and in January, 1916, was considered a military masterpiece.

The word *Anzac* is used specifically to refer to the Australian and New Zealand force on Gallipoli. But many historians have used it in a broader sense to refer to Australian and New Zealand servicemen who fought alongside the Allies in other campaigns in World War I, and even to refer to those who served in World War II. *Anzac Day,* observed as a public holiday in Australia and New Zealand each year on April 25, has come to commemorate the Australian and New Zealand dead of all wars.

To many Australians and New Zealanders, the Anzacs and their bitter struggle at Gallipoli symbolized a new spirit of co-operation and good will between neighbouring countries. To many historians, the campaign represented an ordeal by battle in which the two countries came of age.

See also SIMPSON AND HIS DONKEY in the other Australasian volume.

ANZUS. See INTERNATIONAL CO-OPERATION (Regional Alliances) in this volume.

APEX is an organization for men between the ages of 18 and 40. It aims to provide community service, foster fellowship among its members, and encourage intelligent and aggressive citizenship. It was started in Geelong, Victoria, in 1931 by three young architects. By 1970, there were 570 clubs throughout Australia with more than 14,000 members.

A.P.M. See AUSTRALIAN PAPER MANUFACTURERS in this volume.

A.P.P.M. See ASSOCIATED PULP AND PAPER MILLS in this volume.

ARABANOO (? -1789), a Port Jackson Aborigine, was forced by Governor Phillip into joining the first British settlement at Sydney Cove. He was kept in Phillip's house from December, 1788, until he died in May, 1789. Phillip had hoped to use him as an interpreter. Arabanoo died during a smallpox epidemic that killed many Aborigines but did not affect the British settlers. In November, 1789, Phillip tried to replace Arabanoo by capturing two other Aborigines, Colbee and Bennelong.

ARAFURA SEA is an expanse of water that separates the northern coast of Australia from the island of New Guinea and from Nusa Tenggara (the Lesser Sunda Islands). Most of the Arafura Sea is less than 180 metres (600 feet) deep. For location, see PACIFIC OCEAN (colour map) in the main volumes.

ARANDA are a tribe of Aborigines who live in northern central Australia. They once used simple tools of stone or wood for hunting and digging in the desert area where they lived. But they had a rich and complex religion and an elaborate system of kinship. These factors bound the members of the local group to each other. They spoke a language different from that of their neighbours. The Aranda had four dialects of this language. Many tribesmen now live on government and mission stations. They have lost their traditional way of life. See also NAMATJIRA, ALBERT, in the other Australasian volume.

ARARAT (pop. 8,317) is a major rail and road centre in central western Victoria. Its secondary industries include machinery, cordial, butter, and ice factories, brick works, timber mills, and a textile mill. The surrounding district produces wheat, wine, and wool. Gold was discovered in Ararat in 1854. It was proclaimed a town in 1861 and a city in 1950.

Anzac Troops took part in what was the largest military landing in history in 1915. Stores and equipment had to be stacked on the beaches of the steeply sloping Gallipoli Peninsula.
Australian War Memorial

ARBITRATION AND CONCILIATION

ARBITRATION AND CONCILIATION are important methods of settling trade disputes between employers and workers in Australia, Indonesia, Malaysia, New Zealand, and Singapore. In *arbitration,* the two disputing parties put their arguments before an independent third person. He gives a decision called an *award.* His award may change terms of employment such as working hours, wages, overtime rates, and holidays. In *conciliation,* a third party tries to make both sides reach agreement by explaining each side's point of view to the other and convincing both parties of the advantages of a peaceful settlement. In both cases, the third party may be an individual or a group appointed for the task. See LABOR (Labor-Management Relations) in the main volumes.

Industrial disputes sometimes lead to strikes and lock-outs that disrupt industry, reduce production, and cause serious financial losses. In many countries, governments have set up special bodies to help to settle industrial disputes. Both Australia and New Zealand have comprehensive systems of conciliation and arbitration. In New Zealand, registered trade unions and employers' associations must take their disputes before a conciliation or arbitration court. The governments of Indonesia, Malaysia, and Singapore also sponsor bodies for settling trade disputes. The Malaysian government encourages workers and trade unions to settle disputes voluntarily without referring them to an arbitration court.

Methods of Settling Disputes

The conditions of employment for most workers in Australia and New Zealand are set under an award made by government arbitration. Such an award may run for two or three years, and a court would not generally revise it during that period. But, in the meantime, other problems may arise between employers and workers. They may disagree on how to interpret a particular rule or how general rules should be applied in a particular place of work. Most trade unions regard award terms as a minimum laid down by the conciliation board. They may try to improve on these terms by bargaining with a particular employer.

Changes in working conditions can also lead to disputes. If an employer introduces a new machine or a new method of organizing production, his workers want to make sure that their working conditions do not deteriorate as a result of the change. The management wants to make sure that the new method is given a fair trial in the hope that it will increase efficiency. Minor arguments may result from such conflicting interests. They can easily develop into serious disputes if they are not settled peacefully.

Both employers and trade unions are agreed that minor disagreements should be settled as they arise. A worker who feels that he is not being treated fairly may complain to the foreman. If the foreman does not give an answer that satisfies him, the worker may take the matter to the shop steward, who represents the trade union in the workshop or factory. After studying the rights and wrongs of the case, the shop steward may take the matter up with the foreman.

The relationship between the shop steward and the foreman is the key to good labour relations. The two men must be frank and reasonable with each other in the interest of smooth production. Each must be prepared to "stretch a point" now and then. If they cannot agree on the dispute in question, they refer it to the next higher authority. The foreman takes his case to the factory manager. The shop steward reports the dispute to the secretary of the local branch of the union. The factory manager and the union secretary try to reach an agreement. If they fail, the case may go before a council of conciliation. If the council does not succeed in bringing about an agreement between the two parties, the dispute may be referred to an arbitration court.

Decisions in even minor disputes can be extremely important. The party that believes it has gained a victory may later quote the decision as a precedent in another dispute. A decision on an apparently minor point may lead to a number of changes in other factories. A number of small changes in the interpretation of a particular rule may amount to a change in the rule itself.

Conciliating Authorities

In Australia, statutory bodies set up by federal and state governments try to settle industrial disputes. In general, the law prohibits strikes or lock-outs while an award is current. Under the constitution, the federal government can make laws affecting industrial disputes that extend beyond a single state. The Commonwealth Conciliation and Arbitration Commission and the Commonwealth Industrial Court, both set up by the federal government, play a vital part in settling disputes that cross state lines.

The Conciliation and Arbitration Commission consists of a president, several deputy presidents who are also judges, and a number of commissioners and conciliators. Each commissioner is responsible for settling disputes in one or more industries operating under federal awards. The most important of these industries include the metal, printing, and pastoral industries. A commissioner may try to settle a dispute himself by either conciliation or arbitration. He refers most disputes involving a revision of a major award to an arbitration panel consisting of a *presidential member* (the president or one of the deputy presidents) and two other members of the commission.

The Commonwealth Industrial Court gives judgments in such matters as appeals against awards, interpretation of awards, and disputes between organizations and their members. It can impose penalties on disputing parties for not fulfilling conditions of awards or for not obeying its orders.

The various states have their own tribunals and industrial appeals courts. In New South Wales, five *conciliation commissioners* supervise attempts to settle industrial disputes. Each industry operating under a state award has its own conciliation committee, consisting of a commissioner and an equal number of representatives from the appropriate

trade union and employers' association. When a dispute arises, the commissioner can summon the parties to a compulsory conference. If they cannot reach agreement, he can make a binding decision. In Queensland, a *commission* of five members settles disputes. In South Australia, each industry has an *industrial board,* which determines conditions and settles disputes. A *board of industry* supervises their work. In Tasmania and Victoria, industrial tribunals are called *wages boards.* Western Australia has two main tribunals: a *conciliation and arbitration commission* and an *industrial appeal court.*

In Indonesia, many people work in nationalized industries controlled by the government through the army. The government is the chief employer of labour. It tries to avoid industrial disputes and stoppages by taking the workers' viewpoint into account in making laws for industry. In preparing such laws, it consults workers' representatives from the major trade union federations. Labour dispute committees with members representing both workers and employers play an important part in settling any disputes that may arise. The army prevents strikes and controls the activities of the trade unions.

In Malaysia, the government encourages employers and workers to settle their disputes by negotiation. It believes that good industrial relations are more likely to develop from a voluntary system of settling disputes than from compulsory measures enforced by law. But it sponsors conciliation and arbitration bodies to deal with disputes that the parties have failed to settle among themselves. Employers and trade unions are not compelled by law to accept the awards of arbitration and conciliation bodies, but they usually do. In some industries, such as mining and planting, employers and workers have their own conciliation bodies.

The government has power to establish wage councils for any group of workers that does not have an adequate system for fixing wages. These councils can make orders on such matters as wages and holidays. Their orders can be enforced by law.

In New Zealand, conciliation councils and an arbitration court make awards in industrial disputes. The governor-general appoints a number of conciliation commissioners in each of New Zealand's eight industrial districts. When a dispute occurs, the parties must tell the local commissioner, who appoints a council of conciliation. He chooses an equal number of assesors from trade union and employers' panels. He himself acts as chairman of the council. He helps the parties to reach an agreement, but he does not have a vote. Agreements may be registered, and then have almost the legal force of an award of the Arbitration Court. The parties refer points that they cannot agree on to the Arbitration Court.

The Arbitration Court is the final authority in settling trade disputes. It consists of three members appointed by the governor-general. One member is a judge. The other two represent workers' and employers' organizations. The Arbitration Court has wide powers to hear industrial disputes, make awards establishing minimum conditions of employment, and interpret awards and agreements.

ARBITRATION AND CONCILIATION

In Singapore, two industrial arbitration courts make awards in industrial disputes. Each court consists of a president with the status of a high court judge and two other members drawn from panels of employers and workers. Employers and trade unions can serve notices on each other to negotiate on any industrial matter. The notice must set out proposals for collective agreement. If one of the parties refuses to negotiate, the commissioner for labour sends a report to the minister for labour and the registrars of the industrial arbitration courts, who make another attempt to settle the dispute.

History

In Australia, the various states set up industrial tribunals from the 1890s onwards. In 1904, the federal government passed the Conciliation and Arbitration Act, setting up a Court of Conciliation and Arbitration. The act was not completely successful in its aim, which was to prevent or settle industrial disputes. The trade unions tended to ignore the provisions for conciliation and take their disputes to the arbitration court because the court's decisions could be enforced by law. In 1947 and 1956, the government amended the act in order to promote better working relations between trade unions and employers' associations.

In Indonesia, Dutch firms controlled the chief industries before the country became independent. They used their influence with the colonial government to limit the freedom of workers to take industrial action. Workers who violated the terms of their contracts could be punished under criminal law. After Indonesia became independent, the government passed the Collective Agreements Law of 1954, recognizing the rights of both trade unions and employers. In 1957, it nationalized most industries owned by overseas firms. In 1951 and 1957, it passed two more acts establishing systems of arbitration and conciliation. It also made strikes illegal. Mainly as a result of these measures, the number of labour disputes dropped from about 4,000 in 1957 to about 900 in 1962.

In Malaysia and Singapore, the laws relating to trade unions and conciliation and arbitration were passed after World War II. In Malaysia, the present system for settling disputes is based on the system introduced by the British. Singapore also received the same system, but the government replaced it with the present system in 1960.

In New Zealand, the Industrial Conciliation and Arbitration Act of 1904 encouraged workers and employers to form unions and associations and made provisions for settling disputes in industry. At first, the unions were dissatisfied with the act. Many of them refused to co-operate, and a period of strikes and stoppages followed. But, during the economic depression of the 1930s, the trade unions began to regard the act more favourably. Since then, the system has worked with success.

See also LABOR, in the main volumes, and its list of related articles; STRIKES AND LOCK-OUTS and TRADE UNIONS in the other Australasian volume.

ARBOR DAY is a day specially set aside for tree-planting. It was first celebrated in the state of Nebraska, in the United States, in 1872. The idea spread. In Australia it commenced in Victoria in 1923 when the Australian Forest League organized an Arbor Day on which school children and others planted many thousands of trees. This practise has continued. But recently a broader concept, Earth Day or Earth Week, aiming at general environmental improvement, has superseded Arbor Day.

ARCHAEOLOGY. With no written evidence to help them, archaeologists in Australasia work to learn about the cultural history of such peoples as Australian Aborigines, Melanesians, and Polynesians. The oldest discoveries in the area include the remains of a type of man that probably lived in Java about half a million years ago (see JAVA MAN in the main volumes). In the Niah Caves in Sarawak, archaeologists have found a skull that is at least 35,000 years old. The Aborigines probably arrived in Australia 30,000 years ago (see ABORIGINES [Prehistory] in this volume). In New Guinea, evidence suggests human occupation in the highlands at least 10,000 years ago. Excavations indicate that people settled in New Caledonia about 800 B.C., in the Marquesas about 120 B.C., and in New Zealand about A.D. 950 (see HISTORY OF NEW ZEALAND in this volume).

ARCHER was a family of explorers and pastoralists who dominated the pioneering history of southern and central Queensland.

There were nine members of the firm of Archer Brothers formed in the Moreton Bay district about 1841. These members were David, William, Charles, John, Thomas, Colin, James, Archibald, and Alexander. All were members of a Scottish family. Together they were to operate five sheep and cattle stations.

The first of the Archer brothers arrived in Australia in 1837 and originally worked at Wallerang in New South Wales. In 1841, Thomas, David, and John drove a flock of 5,300 sheep from the Castlereagh River in New South Wales to the Brisbane River. There they set up their first two sheep stations, Durundur and Cooyar. The explorer Ludwig Leichhardt stayed at Durundur in 1843 and 1844. Leichhardt's last letter before he disappeared in 1848 was to Thomas Archer.

The Archers opened up new pastoral land along the Dawson, Mackenzie, Burnett, and Fitzroy rivers. They also pioneered in the Rockhampton district, where they set up the Gracemere station in 1855.

ARCHER, JOHN LEE (1791-1852), a civil engineer and architect, planned many of Tasmania's oldest buildings. He planned the churches of Old Trinity, Richmond, Bothwell, Hamilton, Battery Point, Stanley, and St. John's in New Town. His best-known public buildings include the Ordnance Stores, Public Buildings, and Launceston Court House. His Custom House now houses the Tasmanian parliament. He planned part of Anglesea Barracks and the Ross Bridge. He also planned lighthouses at Low Head and Cape Bruny. Archer was born in Ireland.

ARCHIBALD, JULES FRANÇOIS (1856-1919), contributed greatly to the development of literature and art in Australia. In 1880, he helped to found *The Bulletin*. He was editor of *The Bulletin* for over 16 years. Archibald urged local writers to write short stories and ballads for the magazine. He gathered round him a group of young writers, such as Henry Lawson and Banjo Paterson, to whom he gave assistance and encouragement. Archibald also helped to found the magazine *The Lone Hand*. Later, he became literary editor of *Smith's Weekly*. His will provided for about $A 1,000 annually for an art award, the Archibald Prize. His real name was JOHN FELTHAM ARCHIBALD. He was born at Kildare, near Geelong, in Victoria.

See also ARCHIBALD PRIZE; BULLETIN, THE; and LITERATURE OF AUSTRALIA in this volume.

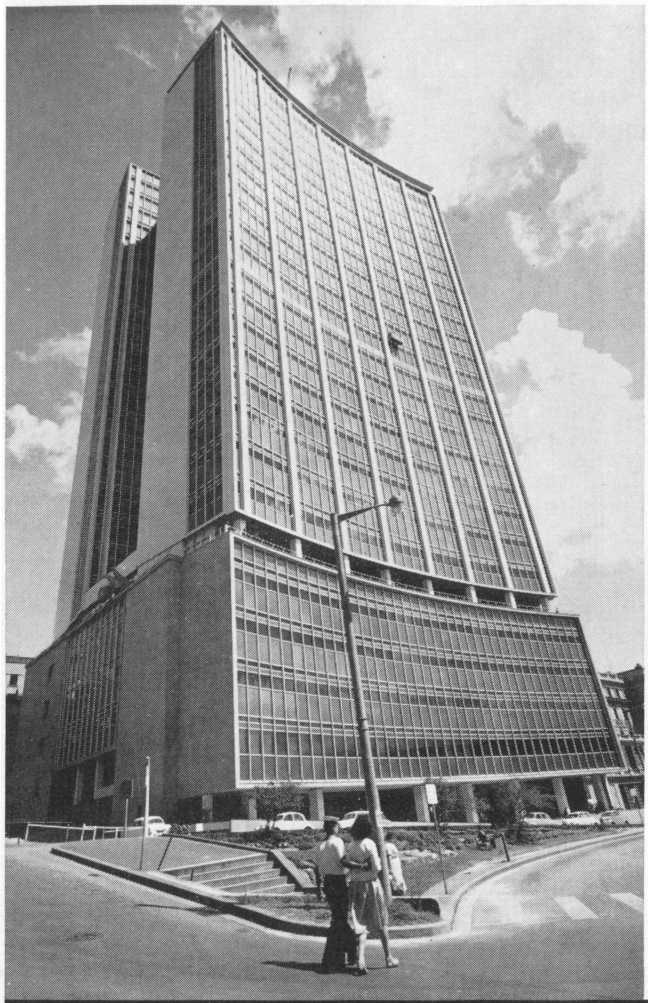
ARCHIBALD PRIZE is an art prize worth $A 1,000 that is awarded each year for portrait painting. Jules François Archibald provided the money for the award in his will (see ARCHIBALD, JULES FRANÇOIS, in this volume). Under the terms of the will, the prize is awarded for the best portrait "preferentially of some man or woman distinguished in art, letters, science, or politics". The portrait must be painted by an Australian artist, or one who has lived in the country for at least 12 months before the entry date of the competition. Artists throughout Australia may compete for the award. The trustees of the National Art Gallery, in Sydney, administer the competition and judge the winning entry. The portraits can be painted in any medium and can be of any size. The winning entry and those considered by the trustees to be worth exhibiting are put on display in the National Art Gallery for a period of not more than two months.

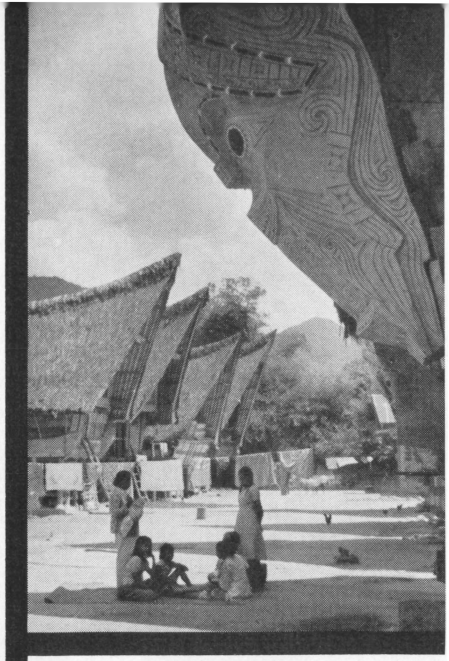
The first Archibald Prize was awarded in 1920. W. B. McInnes won the first award. He also won the competition in each of the next three years, as well as in 1930 and 1936.

In 1943, the exhibition of the Archibald Prize entries attracted a record crowd of 43,000 when William Dobell's controversial portrait of the Sydney artist Joshua Smith was the subject of a legal action. The trustees awarded Dobell the prize. But two other artists charged that his portrait was a caricature. The subsequent court case was the first of its kind in Australian legal history and attracted world-wide attention. The court eventually decided the case in favour of Dobell. Dobell also won the Archibald Prize in 1948 and 1959.

The Melbourne artist William Dargie won the award a record number of times. He entered prize-winning portraits in 1941, 1942, 1945, 1946, 1947, 1950, 1952 and 1956. In 1957, Ivor Hele became the first artist to win the award with a self-portrait. Nora Heysen, who won the award in 1938, Judy Cassab, who won in 1960 and 1967, and Janet Dawson, who won in 1974, are the only women ever to have been awarded the Archibald Prize. The trustees reserve the right to withhold the award if they think that the standard of entries is not sufficiently high. In 1964, they withheld the award for the first time.

See also ARTS OF AUSTRALIA; DARGIE, SIR WILLIAM; and DOBELL, SIR WILLIAM, in this volume.





Marc Riboud, Magnum; Beverley Clifford

Minangkabau Houses, in Sumatra, achieve beauty with traditional materials. Their steep roofs give good drainage.

The A.M.P. Building is one of many modern office blocks in Sydney. Aluminium and glass are used effectively in its design.

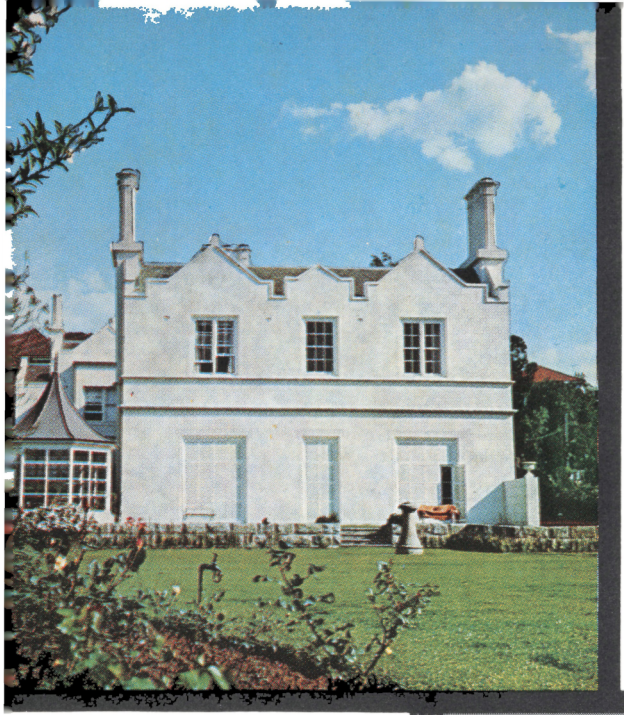
architecture

ARCHITECTURE in Australasia has a wide variety of styles. Each country in the area has its own history, and its people have put up buildings to suit their own needs. The peoples living in tropical areas in what are now Indonesia, Malaysia, and Singapore needed shelter from extreme heat and from torrential rain. They built houses with thin walls that would cool quickly, and with steep roofs that would quickly drain off rain-water. Some time before A.D. 1000, Buddhist and Hindu forms of art and architecture began to exert a lasting influence on architecture in south-eastern Asia. Later, Arab traders introduced the religion of Islam and Islamic forms of art and architecture into the area. Most recently, Europeans from many countries, including Portugal, Spain, The Netherlands, and Britain, introduced their own architectural styles. Most housing and office blocks built in Indonesia and Malaysia today resemble modern buildings in other parts of the world, but many of them have some traditional architectural features incorporated into their design.

By contrast, Australia and New Zealand have had much shorter histories. British settlers in Australia in the 1700s and 1800s carried with them building skills they had learnt in Europe. They designed buildings resembling those they had liked in Europe. The generations of Australian and New Zealand architects who followed them continued to be influenced by European ideas.

Domestic Architecture

Housing in Australia and New Zealand. The first European settlers in Australia lived in huts roofed with slabs of bark or timber (see PIONEER LIFE in the other Australian volume). In the early 1800s, British settlers built more solid houses, copying the Georgian style of architecture popular in Britain at that time (see GEORGIAN ARCHITECTURE in the main volumes). People in Australia often use the term *Colonial* to describe the Georgian style.



Most Colonial houses have doors and windows arranged in regular patterns, and decorative columns adapted from Greek and Roman models. In some Colonial buildings, such as the Experiment Farm Cottage at Parramatta in New South Wales, stone columns support an overhanging roof that provides shade on a veranda. Many country houses built in Australia in the early 1800s are completely surrounded by verandas with overhanging roofs. Most buildings in city areas have verandas only in the front and back.

Early Colonial houses had walls of timber, brick, or stone, and roofs covered with timber *shingles* (small slabs of wood). The silver-grey shingles blended well with the Colonial style. But bush fires made wooden roofs dangerous, and people eventually replaced most of them with roofs of corrugated iron.

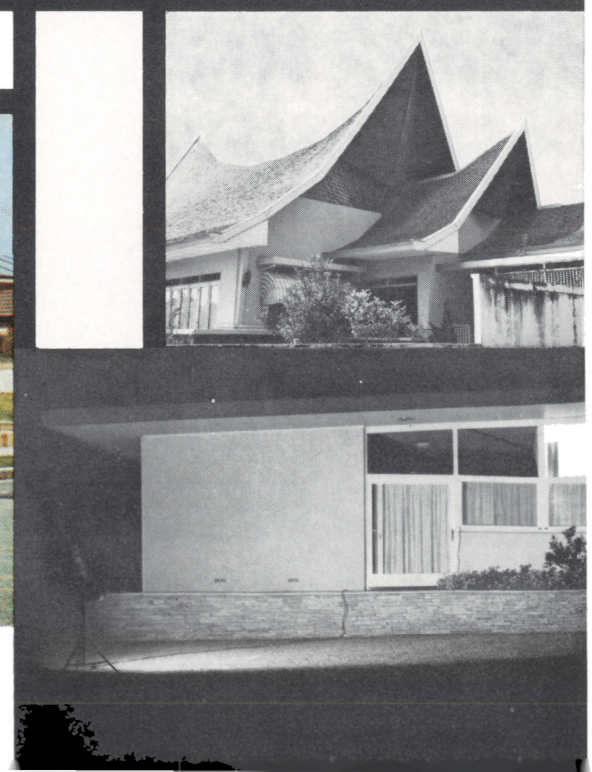
Few European settlers landed in New Zealand before the 1840s. For this reason, New Zealand has few examples of the kind of Colonial house built in

Gert D. Wolff; Max Dupain

Lindesay House, at Darling Point, Sydney, was built in the 1830s. Its design blends Georgian and Gothic styles.

Colonial Houses at Campbelltown, New South Wales, date from the 1830s. They all have shaded verandas.

Experiment Farm Cottage, at Parramatta, New South Wales, is a fine example of Colonial architecture.



Max Hale; Keystone; Fritz Kos, courtesy Raymond Jones

Australia. Settlers in New Zealand designed their houses to look like British cottages rather than traditional Maori houses. But they used wood rather than bricks to build their homes. They had a good variety of timber to choose from, and wooden houses withstood earthquakes better than those of brick or stone. The imaginative use of timber is a distinctive feature of many New Zealand houses, especially modern ones.

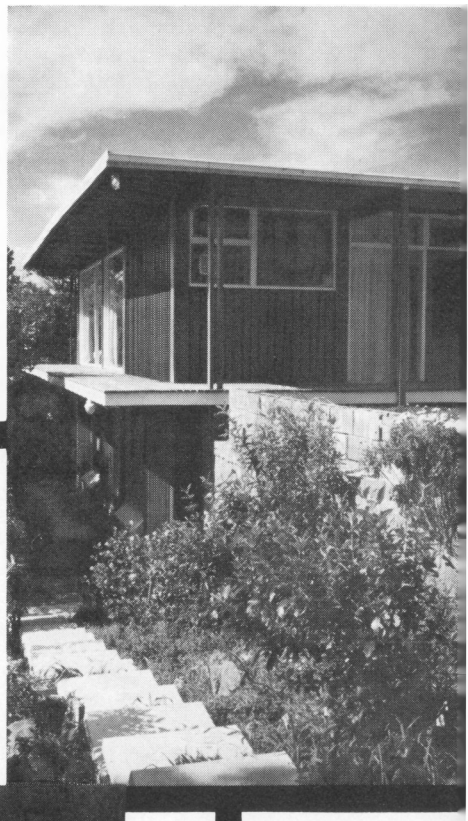
In the mid-1800s, Australian house-design began to be affected by the Gothic Revival and Renaissance styles of architecture favoured in Europe a little earlier (see ARCHITECTURE in the main volumes). One of the first Gothic buildings in Australia was Greenoaks Cottage (now called Bishopscourt) at Darling Point in Sydney. It was designed by Edmund Blacket in 1846 (see BLACKET, EDMUND, in this volume). Other Australian architects during the same period adopted an *Italianate* style. Their designs for such buildings as Toorak House in South Melbourne were inspired by Renaissance architecture in Italy.

Elaborate decoration was a feature of both large buildings and small terrace houses in Australia in the late 1800s. Many Gothic houses had bricks in various contrasting colours, coloured windows, and ornate parapets around their roofs. Many Italianate houses had delicate cast-iron columns, lacy iron screens around their balconies, and gay mosaic tiles on the floors of their porches.

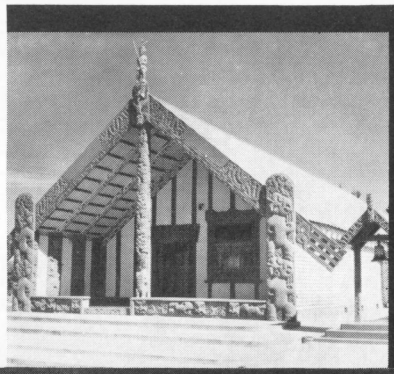
In the 1890s and early 1900s, many Australian houses were built in the *Queen Anne* style. Its main features were red brick walls, orange tiled roofs, and wooden veranda walls. Marseilles-pattern tiles, first imported in quantity to Australia in the 1880s, soon became the most widely used roofing material. Their distinctive orange-red colour is still a feature of many Australian suburbs. Marseilles tiles have alternating grooves that provide efficient drainage in heavy, driving rain, and good ventilation in hot weather.

After World War I, a number of American architectural styles became popular in Australia and New Zealand. Some architects took as their models bungalows in California, or the long, open, ranch-style houses of Frank Lloyd Wright (see WRIGHT, FRANK LLOYD, in the main volumes). Others designed houses to look like old Spanish mission buildings in California, with balconies shaded by arches supported on twisted columns.

A more modern style of architecture reached Australia and New Zealand in the 1930s. Architects began to design houses that were functional and less elaborately decorated. With new materials, such as steel and reinforced concrete, architects could design houses on steeply sloping sites with spectacular views.

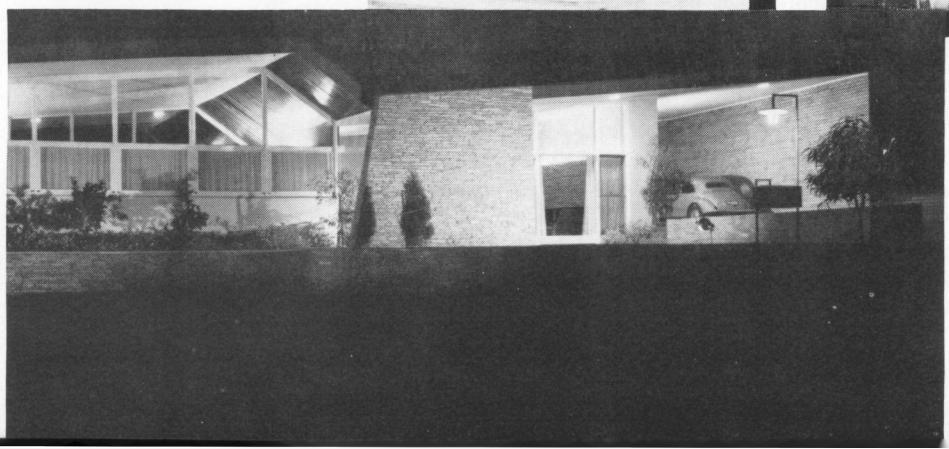


N.Z. Natl. Publicity; D. Winders, courtesy Gabites and Beard



Maori Meeting House near Rotorua, *right,* is modern but decorated with traditional carvings. A modern house in Sumatra, *left,* has a traditional roof design.

Modern Houses are light and spacious. The house at Dalkeith, Western Australia, *below,* features glass and concrete. The timber house, *far right,* is at Wellington.

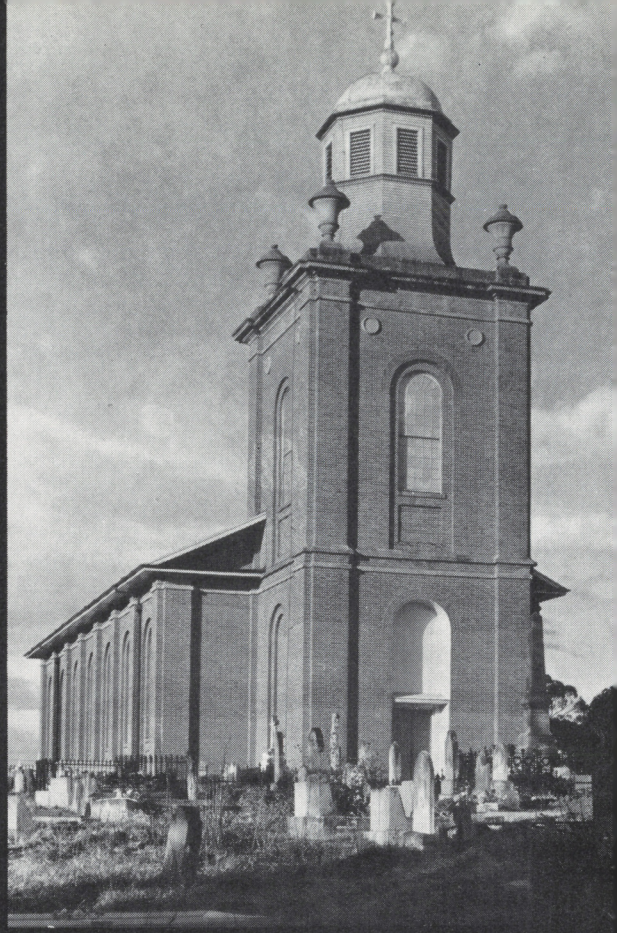


ARCHITECTURE

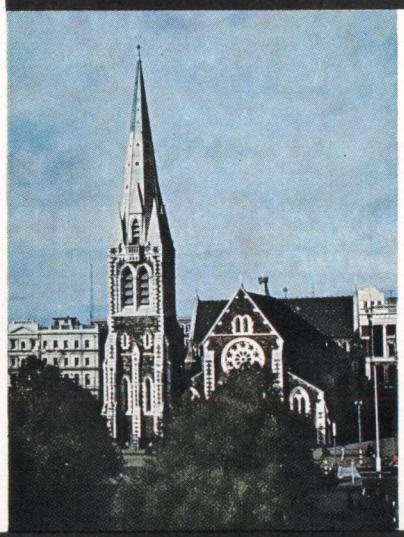
Today, most Australians and New Zealanders live in conventional houses built with conventional materials. In Australia most high-quality houses are built of brick. Many houses, especially in Victoria, have *brick-veneer* walls. They consist of an outer layer of bricks, a timber frame, and an inner coating of plaster reinforced with sisal-hemp fibres. Cheaper houses in New South Wales are built of *fibro* (asbestos cement sheets nailed to the inner and outer surfaces of a timber frame). Most modern houses have sloping roofs covered with tiles, corrugated iron, asbestos cement, or aluminium. Corrugated-iron roofs are cheaper than tiled roofs, but, unless they are insulated, they make the interior of the house too hot in summer.

Since World War II, many Australian families have chosen to share large buildings instead of buying their own small houses and gardens. Tall blocks of *flats* (dwellings for rent) and of *home units* (dwellings for sale) offer many advantages. They are usually closer to city centres than new houses, they make more economical use of land, and they generally give more attractive views.

Housing in Indonesia, Malaysia, and Singapore. Many people in Indonesia and Malaysia still live in various kinds of traditional houses (see MALAYS [Housing] in the other Australasian volume). Some of the houses are beautifully decorated with wood carvings. They have thin walls of timber, bamboo,



Australian National Trust; John A. Stevens; V. J. Maratea



St. Matthew's Church in Windsor, New South Wales, *above*, was built in 1817. Its design is simple and elegant.

Christchurch Cathedral, *left*, was completed in 1904. It was planned as the focal point of the city.

Jami Masjid Mosque, in Kuala Lumpur, *right*, typifies many Muslim buildings in Malaysia and Indonesia.

Borobudur, *below*, in central Java, is an elaborate monument forming a burial mound for Buddhist relics.

The President's Palace at Bogor, in Indonesia, was built by the Dutch in 1745 in the Classical style.

Old Government House, in Melbourne, was shipped from Britain in sections, and was assembled in 1839.

Ron Witton; Beverley Clifford; George D. Carson; Lance Nelson

The Fisher Library of the University of Sydney provides quietness and comfort for students. Its design has won many awards.

Gympie High School, in Queensland, is a typical example of modern school design, giving pupils plenty of space and light.

and palm leaves that provide shade in the humid heat of the day and allow the rooms to cool off at night. The floors of many of the houses are raised on stilts above the ground, partly to allow cooling breezes to blow across them, and partly to keep out animals and termites.

European ideas have had most influence on housing in Singapore and in the large cities of Indonesia and Malaysia. Local government authorities have built tall blocks of flats to provide accommodation for the large number of people who live in a small area. Modern residential buildings resemble those in Australia. But they have large balconies and provide less indoor living-space.

Religious Architecture

In the early 1800s, architects designed a few Australian churches in the Georgian style. Many people consider that Saint Matthew's Church at Windsor in New South Wales is one of the masterpieces of early Australian architecture. It was built to the design of Francis Greenway in 1817 (see GREENWAY, FRANCIS, in this volume). Until the 1950s, the main style of church architecture in both Australia and New Zealand was Gothic. The Anglican Saint Andrew's Cathedral in Sydney is one of the finest Gothic buildings in Australasia. It was started in 1837 by James Hume, but is mainly the work of Edmund Blacket. The Gothic Anglican cathedral in Christchurch, built between 1864 and 1904 to the design of the British architect Sir Gilbert Scott, has a particularly fine setting. During the 1950s and 1960s, Australian and New Zealand architects designed most churches in a more modern style.

Indonesia, Malaysia, and Singapore have a variety of Buddhist and Hindu temples, Muslim mosques, and Christian churches. Indonesia has many Buddhist and Hindu religious buildings completed before the 1000s. They show Indian influence, and are decorated with beautiful stone carvings. The most famous of these buildings are near Yogyakarta in central Java. They are the Buddhist monument of Borobudur, begun in the late 700s, and the Prambanan complex of Hindu temples, begun in the late 800s. Today, the main religion in Indonesia and Malaysia is Islam. Most Indonesian and Malaysian cities have mosques built in the traditional Muslim style with pointed domes and slender *minarets* (towers).

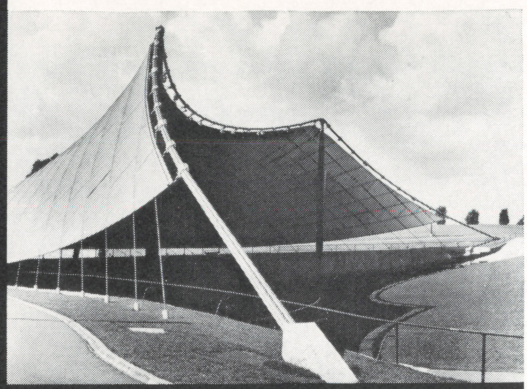
Community Architecture

Government Buildings. The state of Victoria has the most impressive parliament building in Australia, built in 1856. Its tall columns at the top of a wide flight of stairs dominate Bourke Street in Melbourne. The oldest parliament building in Australia is that of the state of New South Wales in Sydney. It is in the Colonial style and was originally built in 1811 as part of a hospital.

Australia's federal parliament meets in Canberra in Parliament House, a temporary building com-

David Gott; Noel T. Sweeney; Max Dupain

Muzium Negara, in Kuala Lumpur, is the national museum of Malaysia. Its design uses modern materials to suggest many traditional architectural features.



Myer Music Bowl, in Melbourne, won an award from the American Institute of Architects in 1959. The canopy provides a shelter for open-air concerts.

Warehouses at Salamanca Place, Hobart, date from the 1830s and early 1840s. They are among the oldest commercial or industrial buildings in Australia.

pleted in 1927 (see CANBERRA [picture] in this volume). Attractive buildings in Canberra include the Law Courts and Yarralumla House, the residence of the Governor-General of Australia. Yarralumla House is an old country mansion, repaired and remodelled in 1926. The Law Courts were completed in 1963. Their exterior is covered with white marble from local quarries. The interior of each court is panelled with timber from one Australian state.

Many new government offices were built in Australian cities during the 1950s and early 1960s. The New South Wales State Office Block in Sydney was completed in 1966. It is 34 storeys high, and is one of the tallest buildings in Australasia.

In Indonesia, many government buildings were built to the designs of Dutch architects in the 1800s. Most of them, including the Parliament Building in Jakarta, are in the Classical style, adapted from Greek and Roman forms of architecture. The palace of the President of Indonesia in Jakarta was originally constructed in 1856 as the residence of the Dutch Governor-General.

In Malaysia, Parliament House is outstanding among the modern buildings of Kuala Lumpur. It was completed in 1963. Its design combines the use of glass, concrete, and aluminium to give the building a light but dignified appearance. See GOVERNMENT OF MALAYSIA (picture) in this volume.

In 1965, the New Zealand government approved plans for a modern parliament building in Wellington. A leading British architect, Sir Basil Spence, planned a circular shape for the new building.

Educational Buildings. During the 1800s and early 1900s, architects in Australia and New Zealand designed many schools and universities in the Gothic style. One of the best examples of their work is the Great Hall of Sydney University, built in 1855 to the design of Edmund Blacket.

After 1930, architects began to design educational buildings that had a simple and more functional appearance. Modern schools provide plenty of light and ventilation. The campus of Monash University, established at Melbourne in 1961, offers many examples of good modern architecture. The Fisher Library of the University of Sydney has won awards from both the Australian and the British institutes of architects.

Modern educational buildings in Indonesia, Malaysia, and New Zealand generally resemble those in Australia. But traditional features are sometimes added to modern designs. For example, the exterior of Bandung Technical College, in Indonesia, resembles the exterior of a traditional Malay house.

Buildings for Entertainment. The Sydney Opera House is one of the most unusual modern buildings in the world (see SYDNEY OPERA HOUSE in the other Australasian volume). Melbourne has a remarkable open-air concert shell, the Myer Music Bowl, that has a suspension roof covered with aluminium coated plywood. Notable buildings for entertainment in Indonesia and Malaysia include the sports stadium built for the Asian Games in Jakarta and the Merdeka Stadium in Kuala Lumpur.

Commercial Architecture

Today, many people regard some early Australian factories and warehouses as architectural masterpieces. But the architects who designed them in the 1800s intended them simply to be useful. Salamanca Place in Hobart has many examples of such buildings. Melbourne and Adelaide still have some factories and warehouses that date from the 1800s. In Melbourne, they were built of a durable, dark blue basalt.

The main feature of modern commercial building in all the cities of Australasia has been the rise of tall office blocks. They began to appear in Australia after 1956, when the city councils of Melbourne and Sydney removed restrictions on the height of buildings. The restrictions were imposed in the 1880s, after the completion of the 12-storey Australia Building in Melbourne, one of the first skyscrapers in the world. Today, many office blocks are more than 20 storeys high. They dominate city skylines.

Town Planning

Town planning is an attempt to build for future needs as well as the present when rebuilding an old area of a city or developing a new one. In Australia, town planning was used to map out the general shapes of Adelaide, Canberra, and Melbourne. Sydney, Australia's oldest city, grew without a plan. As a result, the roads in the centre of Sydney have become choked with traffic.

Robert Hoddle, a government surveyor, designed a rectangular plan for Melbourne in the late 1830s. He insisted that the main streets of the city should be 99 feet wide. This decision saved Melbourne from such acute traffic problems as those that face Sydney. William Light laid out Adelaide in 1836. His plan provided for five regularly spaced squares, surrounded by a wide belt of parkland.

An American architect, Walter Burley Griffin, won a world-wide contest in 1911 to design Canberra. Canberra is laid out on a grand scale with a much larger city centre than either Melbourne or Sydney. The city is designed around a lake, with the commercial centre on one side and government buildings and embassies on the other. Two main roads cross the lake on elegant concrete bridges.

Christchurch in New Zealand was laid out in the 1850s according to a rectangular plan prepared by the surveyor Edward Jollie. The Avon River winds through the town, which is dominated by the tall Anglican cathedral. The Gothic-style cathedral stands in the centre of an orderly pattern of buildings and streets.

Most of the cities of Indonesia and Malaysia have developed without a plan. In the 1950s and early 1960s, town planners in Singapore swept away many of the city's slum areas. They replaced them with new housing estates and provided schools, clinics, restaurants, community centres, wide roads, and shopping areas. In Jakarta and Kuala Lumpur, planners built new satellite townships on the outskirts of the old cities. The new townships have modern commercial and residential buildings spread along wide, well-planned streets.

Aids to Learning

Related Articles. See the articles on the various cities of Australasia in the Australasian volumes of WORLD BOOK. See also the following articles:

MAIN VOLUMES

Architecture
Building Construction
City Planning
Georgian Architecture
Gothic Art
Housing
Islamic Art
Shelter

AUSTRALASIAN VOLUMES

Blackburn, James
Blacket, Edmund
Greenway, Francis Howard
Griffin, Walter Burley
Hoddle, Robert
Light, William
Seidler, Harry
Sydney Opera House

Outline of this article is as follows:

I. **Domestic Architecture**
   A. Housing in Australia and New Zealand
   B. Housing in Indonesia, Malaysia, and Singapore
II. **Religious Architecture**
III. **Community Architecture**
   A. Government Buildings
   B. Educational Buildings
   C. Buildings for Entertainment
IV. **Commercial Architecture**
V. **Town Planning**

Books for Younger Readers include:
Boyd, Robin. *The Walls Around Us.* Cheshire, 1964.
Herman, Morton. *Francis Greenway.* Oxford University Press, 1964.

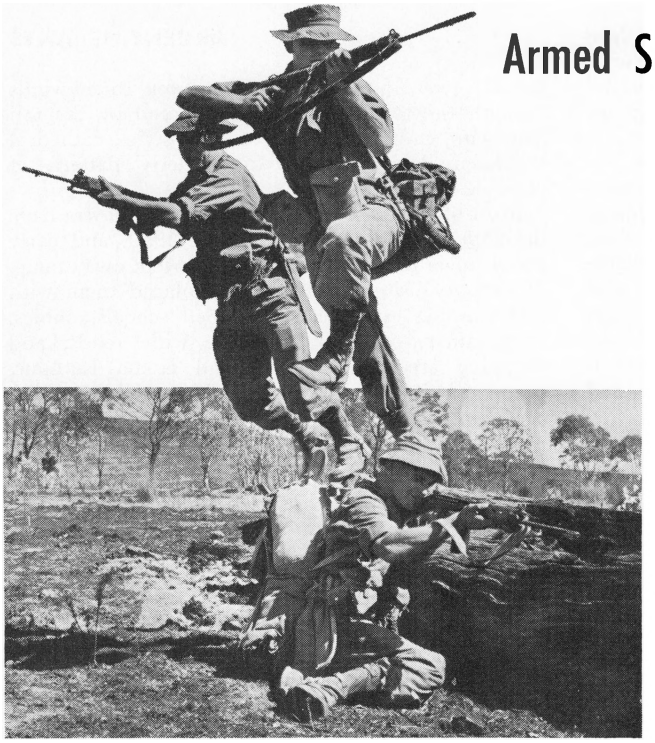
Books for Older Readers include:
Boyd, Robin. *Australia's Home.* Penguin, 1968.
Casey, Maie, and others. *Early Melbourne Architecture.* Oxford University Press, 1966.
Dupain, Max. *Georgian Architecture in Australia.* Ure Smith, 1973.
Herman, Morton. *The Early Australian Architects and Their Work.* Angus and Robertson, 1970.

ARGENTINE ANTS are dark brown ants about one-eighth of an inch long. Argentine ants are one of the most damaging species of ants in the world. They eat fruit, wood, household foods, and other insects.

Argentine ants probably originated in Brazil and Argentina. They were first collected in Argentina about 1866. Since then, they have spread to Africa, Europe, and North and South America. They were first found in Australia about 1939.

Scientific Classification. Argentine ants belong to the ant family, *Formicidae.* They are genus *Iridomyrex*, species *I. humilis.*

Armed Services of Australia



Soldiers of the Australian Army are provided with modern weapons and vehicles. Men of the infantry have modern submachine-guns. The artillery batteries have heavy guns that can be moved by helicopter in remote areas.

Australian Army Public Relations; Australian Photo Agency

ARMED SERVICES OF AUSTRALIA may be small, compared with those of other nations, but they doubled in size between 1950 and 1970. With a strength of about 90,000, they are now better equipped and trained than ever before. Their primary concern is ensuring the security of Australia and its territories. Over the years, the government has also committed the armed services to help defend countries of Southeastern Asia, such as Malaysia, Singapore, and South Vietnam. From 1962 to 1972, more than 50,000 Australians served in South Vietnam, with the peak strength at any one time reaching 8,000 men and women of the three services. Since 1950, many Australians have served in various parts of what is now Malaysia. In 1971, Australia entered into a five-power arrangement with New Zealand, Britain, Singapore, and Malaysia, for regional defence.

The members of the services, the Royal Australian Air Force (RAAF), the Royal Australian Navy (RAN), and the Australian Regular Army, are *regulars* (full-time professionals). The full-time forces have a total of about 68,000 men. This number includes more than 21,000 in the RAAF, 30,000 in the army, and more than 16,000 in the RAN.

Since the 1960s, the government has had major programmes for expanding and re-equipping the armed services. In the main, the programmes have been designed to give the services greater mobility. At the same time, the government has sought to provide the services with aircraft, weapons, and ships similar to those used by Australia's joint defence partners, including the United States and Britain.

In addition to the full-time forces, the armed services have *citizen forces* (forces of part time volunteers). The Citizen Military Forces (now a part of the Army Reserve) total about 22,000 men and women, the Citizen Navy about 5,000, and the Citizen Air Force about 700.

Australia's defence budget has increased greatly in the years since World War II. For example, in the financial year 1949-1950, the government spent only $A 110 million on defence. But, in the financial year 1972-1973, it spent $A 1,285 million on defence.

Organization

The governor-general is legally the commander-in-chief of the armed services. He authorizes commissions for officers and performs other formal duties. But he does not exert any real powers of command. The service departments of the navy, army, and air force were merged in 1972 into a single department.

Each arm of the services has a dual organization, one part civilian and the other uniformed. For example, the Department of Defence (Air Office) is the civilian part of the air arm, and the RAAF is the uniformed part. The Department of Defence (Air Office) is concerned solely with the administration of the air arm. The civil servants who work in the department are responsible for such matters as finance, stores, and records. The RAAF, the operational part of the air arm, consists of such people as the members of the fighting, supply, and transport units.

Three men—an officer and two civilians—direct the work of each arm of the services. In the naval arm, these men are the Chief of the Naval Staff, the Special Deputy of Permanent Head Department of Defence (Navy Office) and the Minister for Defence. The Chief of the Naval Staff is the highest-ranking

officer in the RAN. The Special Deputy (Navy Office) is the chief civil servant in the Department of Defence (Navy Office). And the Minister for Defence, a politician, is a member of the government and must answer to Parliament for the performance of both the department and the RAN.

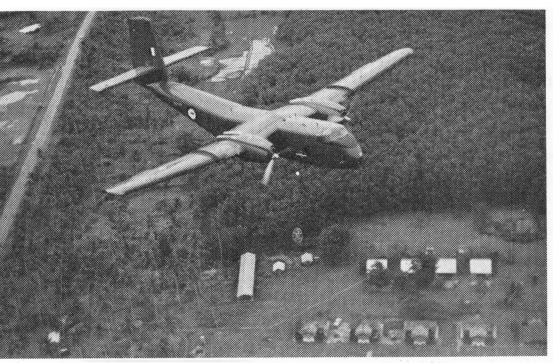
Each arm has its own board, which acts as a collective commander. For example, the Minister for Defence is president of the Military Board. The members of the board include the Chief of the General Staff; his deputy; a group of officers in charge of such matters as operations, personnel, logistics, and material; and the Special Deputy (Army Office).

The Department of Defence co-ordinates the administration of the three services. On the military side, the three chiefs of staff meet as a committee, with the Chairman Chief of Staff committee. On the civilian side, the Secretary for Defence is the chief civil servant in the department. The Minister for Defence is a member of the Australian government, and helps it to decide overall policy for the armed services. He has a *defence committee* to advise him. It includes the three chiefs of staff, the chairman of the chiefs of staff committee, the administrative heads of the three departments, and administrative heads of the Department of Defence, Prime Minister's Department, Department of Foreign Affairs, and Treasury.

The government controls the country's defence system chiefly through a network of committees. Most of the committees include representatives from all three arms, and many have civilian experts, such as scientists and production experts. Each committee plans joint action on some aspect of defence or expenditure, such as research policy.

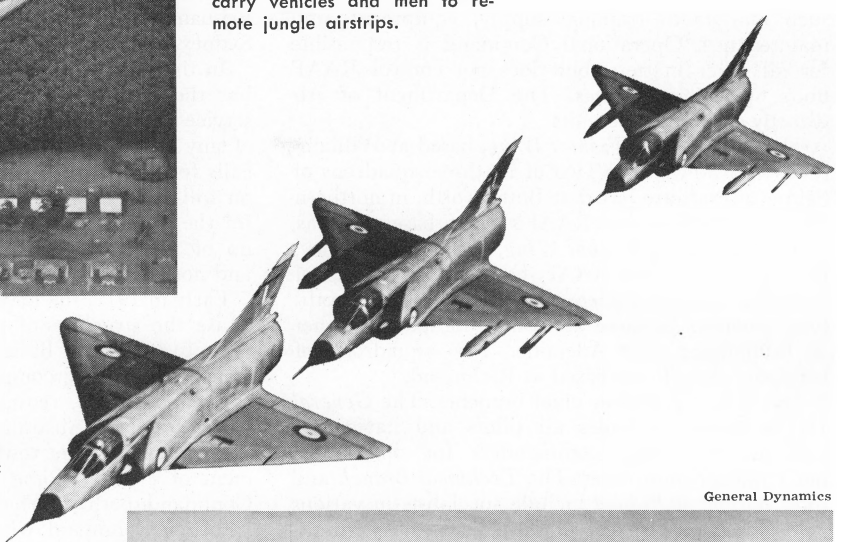
The Air Force. The senior officer of the RAAF is the Chief of the Air Staff (CAS), who holds the rank of air marshal. The other uniformed members of the board are the Air Member for Personnel, Air Member for Technical Services, and Air Member for Equipment. The Special Deputy (Air Office) is Finance Member of the board. A public servant is secretary to the Air Board.

The RAAF is organized in two commands—*Operational Command,* with headquarters at Penrith, near Sydney, and *Support Command,* with headquarters at Melbourne. Each command is headed by an Air Officer Commanding, who has the rank of air vice-marshal. Support Command is responsible for



RAAF Public Relations

Transport Aircraft of the RAAF, such as *Caribou* aircraft, carry vehicles and men to remote jungle airstrips.



Fighter Aircraft of the RAAF include several squadrons of *Mirage III-0* jet aircraft.

General Dynamics

F111C Aircraft, ordered from the United States, were extensively modified to meet the standards of the RAAF.

Australian Army Public Relations; Australian Photo Agency

Landing Craft and Helicopters are among many forms of transport used by soldiers of the Australian Army.

such matters as training, supply, equipment, and maintenance. Operational Command is responsible for all other matters, but does not control RAAF units operating overseas. The Department of Air directly controls these units.

The RAAF has a *Fighter Wing,* based at Williamtown near Newcastle. Two of its three squadrons of fighter aircraft are based at Butterworth, in northern Malaya, which is the RAAF's chief base overseas. The RAAF has a *Bomber Wing,* based at Amberley, near Brisbane. The RAAF has two squadrons of *maritime reconnaissance* (anti-submarine) aircraft. One squadron is based at Townsville and the other at Edinburgh, near Adelaide. Two squadrons of transport aircraft are based at Richmond.

The RAAF has three chief branches. The *General Duties Branch* includes all pilots and navigators, and provides main commanders for operational units and for most bases. The *Technical Branch* and the *Equipment Branch* include specialists in various fields. The service also has medical and administrative sections. The Women's Royal Australian Air Force (WRAAF) is separate from the RAAF. The WRAAF has about 800 members, whose duties include technical musterings, clerical work, typing, and catering.

The Army. The senior officer of the Australian Army is the Chief of the General Staff (CGS), who holds the rank of lieutenant-general. He assists the Minister for Defence in running the Military Board. The other uniformed members of the board are the Vice-Chief of the General Staff, the Chief of Operations, the Chief of Personnel, the Chief of Logistics, the Chief of Matériel, and a senior officer of the Army Reserve. The Special Deputy for the permanent head, Department of Defence (Army Office), is a civilian member of the board. A public servant is secretary to the board.

The army has two main parts—the Regular Army and the Army Reserve. The nucleus of the Regular Army is the *Royal Australian Regiment* (RAR), an infantry force of six battalions. The army is organized into three divisions, with Regular Army units in one and Army Reserve units in the others. The 1st Division (Regular Army) has its headquarters in Brisbane. The 2nd Division is headquartered in Sydney, and the 3rd Division in Melbourne.

In the event of a major war, the governor-general has the power to call out the Army Reserve for service in Australia or overseas. But in the event of any emergency short of a major war, the army calls for volunteers from the Army Reserve to serve on full-time duty with the Regular Army, as it did for the war in Vietnam. The Army Reserve is made up of the former Citizen Military Forces (CMF) and normal army reserves.

Early in 1972, the government announced plans to revise the structure of the army over a period of three to five years. Basically, the army was changed from a geographic command system to a functional command system, requiring each of the new commands to have Australia-wide responsibilities. The main feature of the restructuring was the establishment of a Field Force Command and a Training Command, both with headquarters in Sydney, and a Logistics Command with its headquarters in Melbourne. The seven former geographic command headquarters were to be disbanded, with state administration to be conducted by Military District Headquarters. Headquarters Field Force Command was to command all regular field force units and initially all the Army Reserve units.

As well as fighting troops, the army has various specialist corps, such as the Royal Australian Army Medical Corps and the Royal Australian Electrical and Mechanical Engineers. One of the specialist corps, the Women's Royal Australian Army Corps (WRAAC) has more than 1,200 members. Their duties include administrative and technical tasks, typing, driving, and cooking.

The Navy. The senior officer of the RAN is the Chief of the Naval Staff (CNS), who holds the rank of vice-admiral. The Naval Board comprises the CNS, the Deputy Chief of the Naval Staff, and the Chiefs of Personnel, Technical Services, Supply and Works. Other senior uniformed officers of the RAN include the Flag Officer Commanding the Australian Fleet and the Flag Officer Commanding East Australia Area. These two officers are rear-admirals. In peacetime, the FOCAF divides his time between administrative duties in Sydney and sea duty with the fleet. Officers of the RAN are grouped into several branches including *executive officers* (officers responsible for navigating and operating warships), *supply officers* (officers responsible for purchasing equipment, paying wages, and keeping accounts), *engineer officers* (officers responsible for operating ships' engines and mechanical equipment), and *medical officers* (doctors and dentists).

The RAN has its own pilots for aircraft-carrier duties. They are classed as executive officers. They may be promoted to senior commands of ships, in the same way as other executive officers. The Women's Royal Australian Naval Service (WRANS) is separate from the RAN. Its 765 members perform such duties as technical and administrative tasks, typing, driving, and cooking.

The RAN has reserve divisions. Career officers and seamen in the RAN are posted to the reserve when they retire. In a major emergency, such as the outbreak of a war, they would be called on for further service with the RAN. The Royal Australian Naval Reserve (RANR) is a volunteer force of men who undertake naval training in preparation for call-up in an emergency.

Training

All three services have colleges that train young men for long-term careers as officers. The RAAF College at Point Cook, near Melbourne, is affiliated to the University of Melbourne. It provides a five-year course that includes studies leading to the degree of Bachelor of Science from the university.

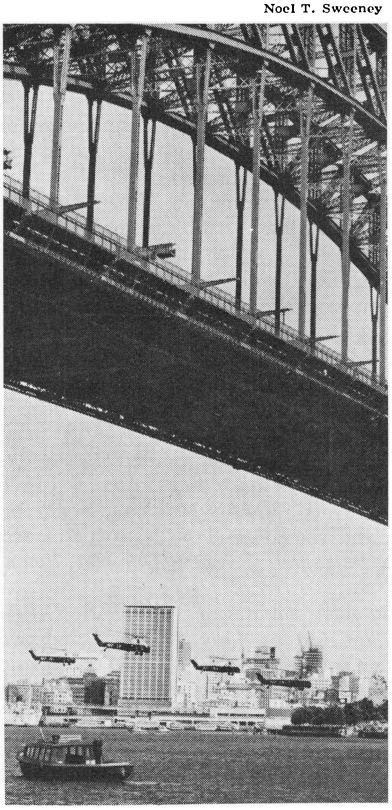
The Royal Military College at Duntroon, near Canberra, trains army officers. It is affiliated with the University of New South Wales and offers degree and diploma courses. The Officer Training School at Portsea, near Melbourne, provides a year's training for men who join the Regular Army as cadet officers. The army has a staff college that provides courses in administration for senior officers.

The RAN training college is the Royal Australian Naval College at Jervis Bay, on Australia's eastern coast. This college trains boys aged between 14 and 17 for careers as long-term officers. Another training programme, called the *senior entry system,* provides a short course for men who join the RAN as cadet officers, not necessarily for a long-term career. The RAN sends senior officers to Royal Navy colleges in Britain for courses in administration.

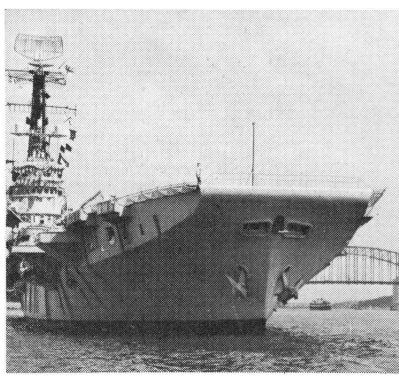
Equipment and Bases

The Air Force is equipped with *Mirage III-0* fighter aircraft which have been modified to a full

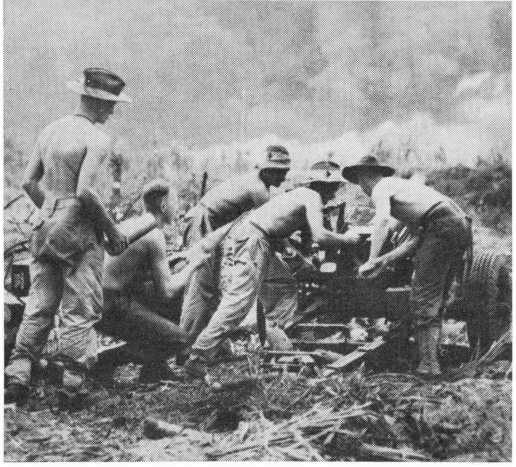
Noel T. Sweeney

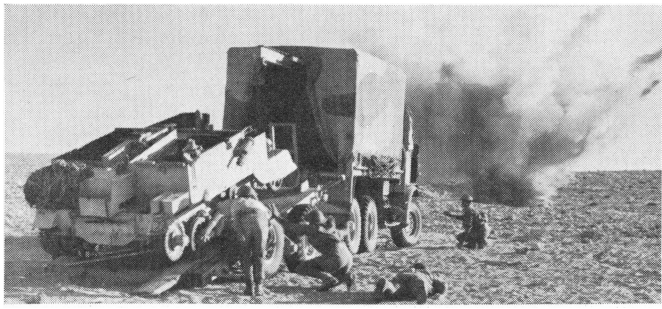


Royal Australian Navy



Australia's Navy operates one aircraft carrier, H.M.A.S. *Melbourne.* This ship carries a group of helicopters. The Australian Fleet also includes many destroyers and frigates.





Australian War Memorial

The "Rats of Tobruk" played an important part in the Battle of Tobruk, in northern Africa, in 1941.

Men of the Second AIF served in many parts of the world during World War II, including northern Africa and Europe.

RAAF Bombers operated chiefly in the Pacific area, especially over New Guinea and nearby islands, during World War II.

ground attack capability; *FIIC strike aircraft; Orion* and *Neptune* maritime reconnaissance aircraft; *Hercules* and *Caribou* transport aircraft; *Iroquois* and *Chinook* helicopters for tactical support of the army; *Macchi* trainer aircraft; and a special transport unit of *BAC 1-11, Mystère 20,* and *HS 748* transport aircraft. Two squadrons of *Mirage* fighters are based at Butterworth in Malaysia as part of the five-power defence agreement.

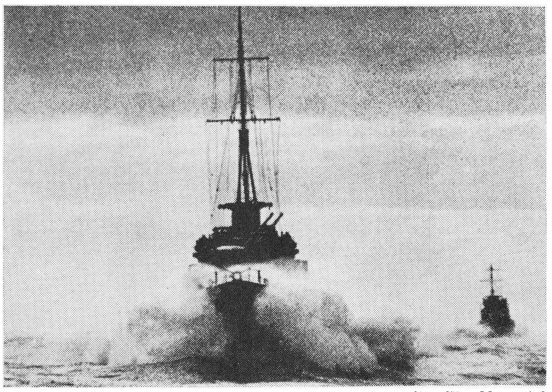
The chief bases of the RAAF are at Amberley and Townsville, in Queensland; Richmond and Williamtown, in New South Wales; Point Cook, Laverton, and East Sale, in Victoria; Edinburgh, in South Australia; Pearce, in Western Australia; Tindall and Darwin, in the Northern Territory; and Butterworth, in northern Malaysia. Apart from service in Malaysia and Papua New Guinea, the RAAF is involved in frequent exercises at home and abroad.

The Army. In the 1960s, the government of Australia agreed on a three-year programme to spend a total of $A 150 million (£60 million) on re-equipping the army. The programme emphasizes the concept of *air mobility*—that is, providing soldiers with light, easily portable equipment that can be flown in to battle areas by army helicopters and light aircraft. In 1964, the army began establishing an aviation regiment equipped with light aircraft and *Sioux* helicopters. As part of its change-over to the air mobility concept, the army ordered many American-built *M113* troop-carrying vehicles. The *M113* is a relatively light vehicle, because it has aluminium armour-plating instead of steel. In the 1960s, the army replaced much of its older equipment, including artillery, tanks, and machine-guns.

The chief army bases are at Enoggera, Townsville, and Canungra, in Queensland; Kapooka and Singleton and Holsworthy in New South Wales; Puckapunyal, in Victoria; and Singapore.

The Navy. The flagship of the Australian fleet is its one operational aircraft carrier, HMAS *Melbourne.* The RAN also has three guided missile destroyers (HMAS *Perth, Hobart,* and *Brisbane*); three Daring-class destroyers (HMAS *Vampire, Vendetta,* and *Duchess*), and six River-class destroyer escorts (HMAS *Yarra, Parramatta, Stuart, Derwent, Swan,* and *Torrens*).

Four Oberon-class submarines (HMAS *Oxley, Otway, Ovens,* and *Onslow*) are in service and two more were under construction in Britain in the mid 1970s. Other ships include four coastal mine-sweepers (HMAS *Hawk, Teal, Gull,* and *Ibis*), two minehunters (HMAS *Curlew* and *Snipe*) and 19 patrol boats, of which four are serving in Papua New Guinea. HMAS *Anzac* and HMAS *Duchess* are training ships.



Australian War Memorial

Australian Warships, including the cruiser *Australia, above,* served in World War II.

Support ships include a destroyer tender (HMAS *Stalwart*), an oiler (HMAS *Supply*), four research and survey ships, and two reserve training ships.

In the 1960s, the navy entered into a re-equipment programme which up-dated the aircraft on its aircraft carrier, HMAS *Melbourne*. American-built *Skyhawk* jet fighter-bombers replaced British-built *Sea Venom* aircraft and American-built *S2E Tracker* aircraft replaced the British-built *Gannet* anti-submarine aircraft. The ship also carries British-built *Wessex* helicopters.

The RAN's chief dockyards are at Garden Island in Sydney Harbour and Williamstown, near Melbourne. Design work, planning studies, and work construction were carried out during the early 1970s to develop a new generation of ships and facilities to serve the navy in the 1980s.

History

Before the Australian colonies federated in 1901, each of them had a small force of regular soldiers and militiamen. Each colony also had a small navy. In 1902, the new federal government united the small armies of the colonies to form the Commonwealth Military Forces. In 1903, the government began forming the navies of the colonies into a single navy, later called the Royal Australian Navy. By 1914, the ships of the RAN included the battle cruiser HMAS *Australia,* six other cruisers, two submarines, and several small craft. In 1909, the government introduced compulsory military training. By 1914, it could form its first large army, the Australian Imperial Force (AIF), to fight beside British troops in World War I. A total of about 59,000 soldiers of this volunteer force died during the war (see HISTORY OF AUSTRALIA in this volume).

In 1915, the government of British India asked the Australian government to send an air force to Mesopotamia (now chiefly part of Iraq). The government sent a group of Australian airmen, known as the *First Half Flight,* to take part in operations against Turkish forces in Mesopotamia. In 1916, the government set up No. 1 Squadron of the Australian Flying Corps (AFC). In 1916, 1917, and 1918, this squadron fought against Turkish forces in Palestine (now chiefly in Israel). Three other squadrons of the AFC served in France with the Royal Flying Corps during the war.

After World War I, the government disbanded the AIF. But soon after the war had ended, the government re-established compulsory military training in the Commonwealth Military Forces. The government disbanded the AFC, but replaced it with a temporary force, the Australian Aviation Corps, which the army controlled. In 1921, the government established the RAAF as a separate arm of the services. The government retained the RAN, but reduced its size to eight ships. On Sept. 3, 1939, the prime minister, Robert Gordon Menzies, announced that Australia was at war with Germany. Recruiting began immediately for the second AIF. In January, 1940, the first soldiers left Australia led by Lieutenant-General Sir Thomas Blamey. Australian troops fought in the campaign in northern Africa during 1940 and 1941. They helped to repulse an Italian attack on Egypt, and to capture Tobruk and Bengasi in the Italian colony of Libya. During the first half of 1941, the 6th Division of the AIF fought a gallant rear-guard action through Greece and the Mediterranean island of Crete. In June, 1941, Australian and other Allied troops occupied Syria.

The Japanese attack on the American naval base at Pearl Harbor on Dec. 7, 1941, forced Australian attention away from Europe and Africa to the Pacific Ocean. Japanese troops captured Singapore taking 15,000 Australian prisoners. In January, 1942, Japanese invaded New Guinea and began to move over the Owen-Stanley Mountains by way of the Kokoda Trail toward Port Moresby. Japanese bombers struck at Darwin and other northern Australian towns. Midget submarines entered Sydney Harbour. The American navy won important victories in the Coral Sea and at Midway Island, preventing a Japanese sea attack at Port Moresby. Australian troops eventually halted the Japanese on the Kokoda Trail.

Aids to Learning

Related Articles in WORLD BOOK include:

MAIN VOLUMES

Gallipoli Peninsula — World War I — World War II

AUSTRALASIAN VOLUMES

Anzac
Blamey, Sir Thomas
Brisbane Line
Chauvel, Sir Harry
Conscription
Diggers
Emden
Ex-Services Organizations
Hobart (ship)
Jindivik
Kokoda Trail
Monash, Sir John
Sydney (ship)
Victoria Cross

Outline of this article is as follows:

I. **Organization**
II. **Training**
III. **Equipment and Bases**
IV. **History**

Books to Read about this topic include:

Millar, T. B., *Australia's Defence,* Melbourne University Press, 1969.

Parnell, N. M., and Lynch, C. A., *Australian Flying Corps and R.A.A.F.,* Vol 1-4 Aviation Historical Society of Australia, 1973.

Southall, I., *17 Seconds,* Hodder and Stoughton, 1973.

Camera Press; Wide World

Vehicles and Equipment have been shipped to Indonesia by France, Russia, and the United States.

ARMED SERVICES OF INDONESIA, as in most countries, include an army, a navy, and an air force. In addition, the national police are also part of the armed forces. Some of the police force undergo military training. Officers from the other services, especially the army, do duty with the police at times. The commander-in-chief of each of the four services is also the minister for his service and is a member of the cabinet. Many officers of the services are released from active duty to serve as civilian governors of provinces or chiefs of districts.

The president of Indonesia is the supreme commander or commander-in-chief of the armed services. The army has about 320,000 members, including reserves. The navy has 35,000 members and the air force has 30,000. The state police has 110,000 members. The army, navy, and air force have equipment supplied by a number of other countries, including Britain, Russia, and the United States.

History. Indonesian soldiers, trained by the Dutch, formed part of the Royal Netherlands Indies Army until World War II. From 1942 to 1945, the Japanese occupied the territory. They formed and trained an Indonesian armed auxiliary corps. After the war, these Japanese-trained soldiers formed the basis for the People's Security Army of the revolutionary government of the Republic of Indonesia. After independence this army became the National Indonesian Army (TNI).

From 1951 to 1960, the United States supplied most of the arms and other material. But later, during the 1960s, Russia became almost the only source of supply for the armed forces. The army in Indonesia became identified to a high degree with the civil population.

Units of the army were associated with the areas in which they recruited. From the late 1950s, officers and some other ranks were elected or appointed to positions of civil authority. The army also provided management for enterprises formerly owned by overseas companies that were taken over by the Indonesian government. By 1959, the armed forces began to play a direct part in the government of Indonesia. Army officers occupied one out of every four cabinet posts. The army chief of staff, Lieutenant-General A. H. Nasution, became the first serving officer to be minister for defence.

The navy of the Republic of Indonesia was established in 1945, and the Air Force in 1946. After independence, the Dutch handed over the aircraft, equipment, and airfields of their colonial air force to the Indonesians. They also handed over a number of small ships. In the late 1950s and the 1960s, both forces grew as Russia provided Indonesia with additional aircraft, ships, and technical help.

ARMED SERVICES OF MALAYSIA consist of the *regular forces* (full-time professionals) and the *volunteer forces* (part-time volunteers). The regular forces comprise the Malaysian Army, the Royal Malaysian Navy (RMN), and the Royal Malaysian Air Force (RMAF). The volunteer forces comprise the Territorial Army, the Royal Malaysian Naval Volunteer Reserve (RMNVR), and the Royal Malaysian Air Force Volunteer Reserve (RMAFVR).

The Malaysian government has had help from many countries, including Australia, Britain, Canada, and New Zealand, in developing its armed services. Many officers from these countries have served in Malaysia's armed services. Today, an increasing number of Malaysians are replacing them.

The Malaysian Army has a total of about 43,000 officers and men, including about 25,000 *territorial* (part-time) soldiers. The RMN has a total of about 120 officers and 1,500 men, in addition to several hundred members of the RMNVR. The RMAF has a total strength of about 1,500 men, in addition to several hundred members of the RMAFVR.

The Malaysian Army calls up young men under its *national service* (compulsory military training) programme. It selects men between the ages of 21 and 29. The total number called up depends on the military situation and on the training facilities available. After undergoing training for two months, these men may be drafted into regular army units for up to 22 months, or placed in the army reserve for 5 years, to be available in an emergency. Members of the reserve do two weeks of full-time training each year. Many of these soldiers also serve in units of the Local Defence Corps, a section of Malaysia's Territorial Army.

The *Yang di-Pertuan Agong* (king) is the supreme commander of the armed services. The Armed Forces Council is responsible to the Malaysian government for the service.

Malaysian Infantry Units, such as the Border Scouts, operate in many parts of Sabah and Sarawak in Borneo.

Soldiers of the Malaysian Army are trained to undertake missions in the jungles of southern Malaya.

Wide World

The New Zealand Herald

Soldiers of the New Zealand Army are equipped with modern weapons and vehicles. They take part in exercises at Waiouru in the North Island, where the chief army base is located.

ARMED SERVICES OF NEW ZEALAND are small compared with those of such countries as Britain, Russia, and the United States. But New Zealand's armed services are well-designed for their special functions.

The services are composed entirely of volunteers and all three services—army, air force, and navy—are integrated under one Ministry of Defence.

New Zealand is a difficult country to defend. It has more than 3,219 kilometres (2,000 miles) of coastline, and only about 500,000 men aged between 17 and 50 in its population. The country is isolated. It has little heavy industry, and it cannot make the complicated weapons that are necessary for its defence.

New Zealand buys almost all its military equipment from other countries, with money earned largely by the sale of farm products, especially meat, wool, and butter.

Defence Policy

New Zealand seeks as far as possible to maintain independent means of self defence. The defence relationship with the United States, which finds formal expression in the ANZUS Treaty, is still a significant factor in New Zealand's defence policy. But less emphasis is placed on collective security than formerly. There are well developed defence ties with Australia which reflect shared strategic interests as well as a close identity of national character and outlook.

With the approval of the governments of Malaysia and Singapore, New Zealand, along with Britain, stations military forces in Singapore. The military forces are stationed there under the five-power defence arrangements.

The purpose of this presence is to promote the stability and security of the region of south-eastern Asia. Mutually beneficial co-operation with regional neighbours in the field of defence training is being expanded as a means of strengthening friendly relations with the countries involved.

In the absence of any direct threat to its national security, New Zealand is placing increasing stress on the potential of its armed services to carry out civilian aid activities. These tasks will be carried out both within New Zealand and as part of aid programs to developing nations. But they are not performed at the expense of military capabilities of the services.

New Zealand maintains military ties with a number of Commonwealth nations that do not form part of any formal military alliance. The two formal treaties of which New Zealand is a member are the Australian-New Zealand-United States (ANZUS) Treaty of 1952, and the South East Asia Treaty Organization (SEATO) established in 1955. New Zealand strongly supports the present SEATO policy of significantly reducing its military activities. See ANZUS and SOUTH EAST ASIA TREATY ORGANIZATION in the main volumes.

Recruitment

Men join the New Zealand forces for full-time service as volunteers. But, at various times, New Zealand has imposed compulsory service for men on

a local part-time basis. Both the RNZN and the army have volunteers who train part-time.

Organization

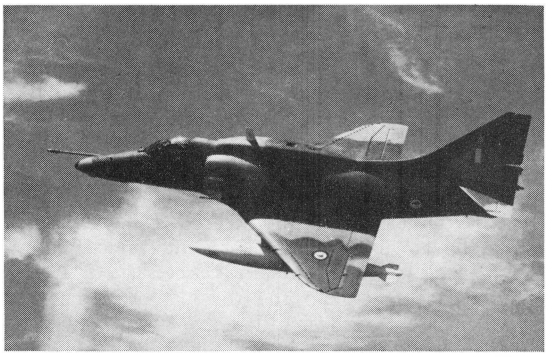
Under the Defence Council, the Chief of Defence Staff commands the air force, army, and navy through the respective chief of staff. He is also the principal military adviser to the Minister of Defence. The Secretary of Defence is the civilian permanent head of the ministry and is the principal civilian adviser to the minister.

The Air Force

The Royal New Zealand Air Force is a small but well-equipped service. It has about 4,300 officers and men of other ranks. The RNZAF is designed to perform three basic functions: patrolling the sea, supporting military operations on land, and transporting men and equipment. It has long-range aircraft equipped with electronic detecting gear. They patrol the sea, searching for submarines and protecting shipping. The RNZAF has fighter-bombers that are capable of supporting the army in south-eastern Asia as well as in New Zealand. It has transport aircraft that can take troops to other countries at short notice and keep them supplied. It also has aircraft for training and for communications.

The RNZAF is organized into two main groups. One group consists of the air stations at Whenuapai and Hobsonville, both near Auckland, and Ohakea, near Palmerston North. All operational aircraft are based at these stations. The other group consists of bases at Te Rapa (near Hamilton), Wigram (near Christchurch), and Woodbourne (near Blenheim), and is responsible for training and depot servicing and supply functions. A transport unit based on Singapore operates widely in south-eastern Asia.

The Chief of Air Staff commands the RNZAF and is supported by an Air Staff located in the Ministry of Defence headquarters in Wellington.



RNZAF

Air Force fighter-bombers include the Skyhawks which take part in operational training flights over New Zealand.

The Army

The New Zealand Army has two major functional groups—Field Force Command and Home Command. The two commands and the overseas elements in south-eastern Asia are directly responsible to the Army General Staff, the army component of Defence Headquarters.

Field Force Command has its headquarters at Fort Cautley near Auckland. It comprises an infantry brigade group with infantry, armoured, engineer, artillery, and special air services units, together with integral services support. It also has a reserve brigade group at Christchurch and a logistic support group at Palmerston North.

Home Command is responsible for the static organization of the army, which it administers through seven geographical Army Area Commands, three major camps, and the Army Training Group based at Waiouru.

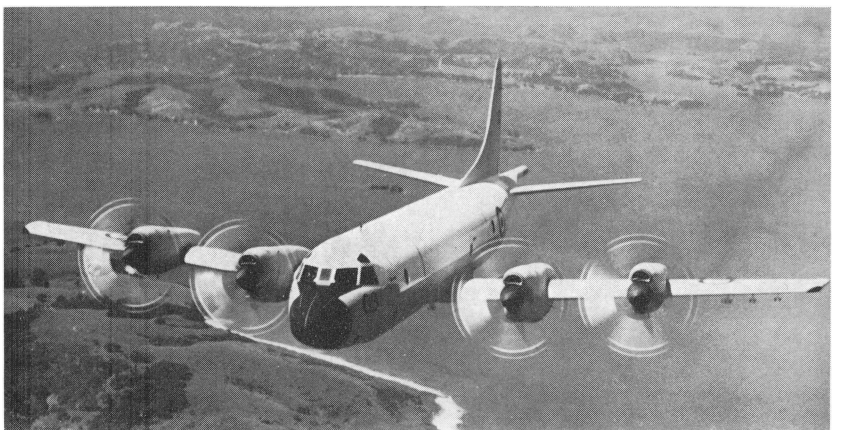
The overseas elements and staffs at Home Command units are manned by regular full-time soldiers. Field Force Command units include both regular and non-regular soldiers. The non-regulars are all volunteers. New Zealand's main overseas commitment is the maintenance in Singapore of an infantry battalion and its support elements. It exists alongside a similar sized British force. Minor support is also provided to the armed services of Fiji and Tonga.

While command of all New Zealand Defence Forces is vested in the Chief of Defence Staff, the direct command of the army is exercised through the Chief of the General Staff.

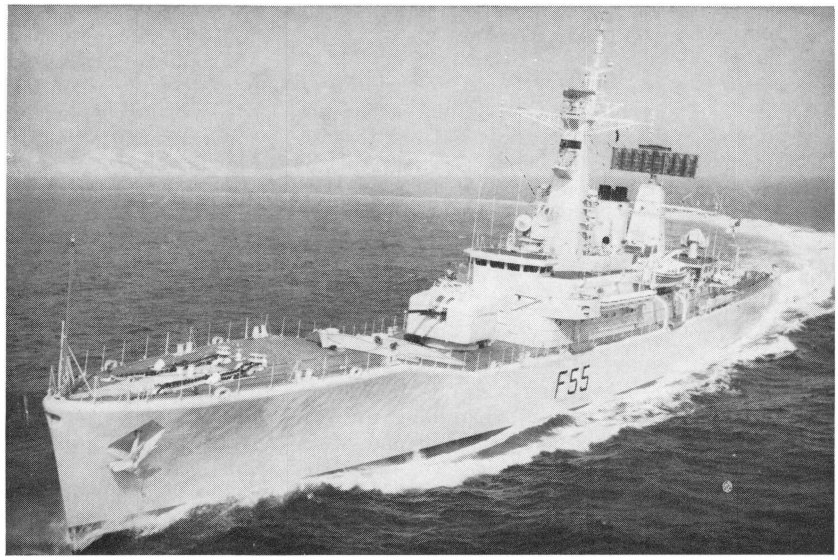
The Navy

The Royal New Zealand Navy numbers about 2,800 officers and men. The fleet comprises four fast anti-submarine frigates (H.M.N.Z.S. *Otago, Taranaki, Waikato,* and *Canterbury*): a survey ship (*Lachlan*) which prepares and updates charts of the New Zealand coastline; a research ship (*Tui*) conducting underwater scientific research; two former minesweepers (*Kiama* and *Inverell*), employed in a combined training and fishery protection role; and

RNZAF



Aircraft in the Royal New Zealand Air Force include the long-range Orions which are used on maritime patrols off the New Zealand coast.



Warships of the Royal New Zealand Navy include H.M. N.Z.S. *Waikato,* one of four fast anti-submarine frigates.

RNZN

several seaward defence motor launches which are used for fishery protection patrols.

The Chief of Naval Staff is responsible for the direct command and control of the RNZN. He is supported by the Naval Staff, a branch of the integrated Ministry of Defence in Wellington.

The principal naval command is the naval base in Auckland, which includes the Commodore Auckland's Headquarters (the administrative authority for the RNZN); a small but modern dockyard; a stores organization; H.M.N.Z.S. *Philomel,* the navy's largest training establishment; and H.M.N.Z.S. *Tamaki,* the new entry training establishment.

H.M.N.Z.S. *Irirangi,* the naval radio station at Waiouru in the centre of the North Island, is a vital link in the Commonwealth communications network. It also maintains communications with New Zealand and allied warships in the South Pacific.

History

Early Armed Services. Even before 1840, when New Zealand became a British colony, Royal Navy ships had visited New Zealand, chiefly in order to support law and order in the Bay of Islands area. In 1845, war between the settlers and the Maoris seemed imminent. The colonial government passed the Militia Act and the Governor introduced compulsory military service. In 1899, New Zealand sent its first troops overseas—to fight in the Boer Wars (see BOER WAR in the main volumes). From 1899 to 1902, it sent 10 contingents of troops to South Africa.

Independent Armed Services. In 1909, the government imposed compulsory military training and, in 1911, it established a territorial force to defend the country. At the same time, the army developed a small staff of permanent soldiers. In 1913, the country decided to form its own naval force. But World War I held up development of this force. During the war, many New Zealanders received training in flying schools and went overseas to serve in action with the Royal Flying Corps and the Royal Naval Air Service. In Egypt in 1915, Australian and New Zealand forces formed the Australian and New Zealand Army Corps (Anzac). These men fought gallantly in the Gallipoli campaign (see GALLIPOLI PENINSULA in the main volumes).

In 1921, the government began recruiting men for its naval force, known as the New Zealand Division of the Royal Navy. Britain and New Zealand agreed that, in the event of war, control of the force would pass to the Royal Navy.

In the same year, the government established *refresher courses* for pilots who had served in World War I. These courses were designed to enable the men to maintain their skill as pilots. About this time, the government established the New Zealand Aviation Corps as part of the army. In 1923, this corps became the New Zealand Permanent Air Force, but it was still part of the army.

In 1930, the government ended the compulsory military training scheme it had introduced in 1909. In 1937, under the Air Force Act, the government made the air force an independent service, called the Royal New Zealand Air Force. In 1941, the New Zealand Division of the Royal Navy also became an independent service, called the Royal New Zealand Navy.

The 1964 defence act created a Ministry of Defence incorporating the air force, army, and navy and abolished the separate service departments. The 1972 Defence Act disbanded the three service boards and nullified all but the disciplinary provisions of the air force, army and navy acts.

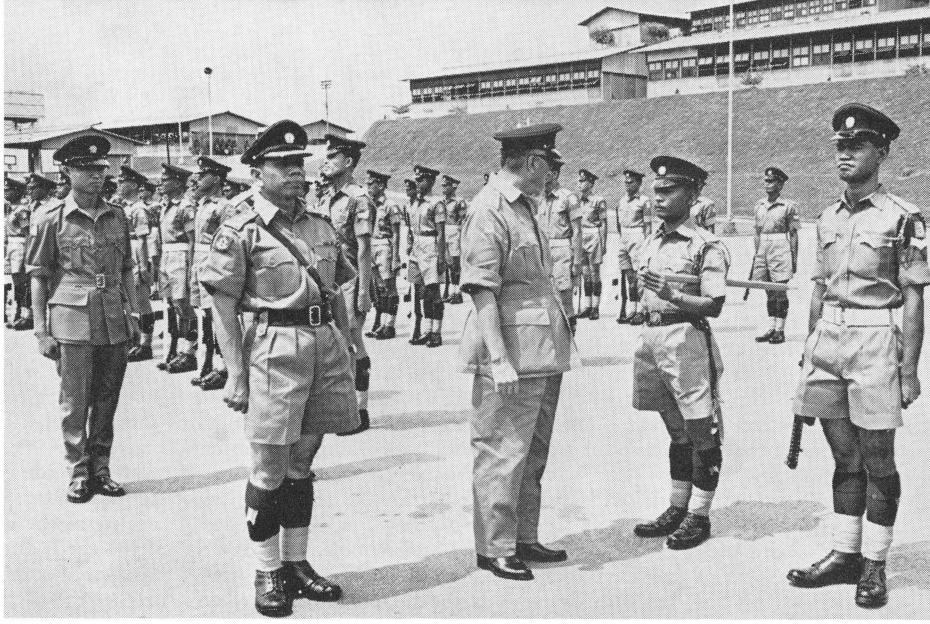
Related Articles in WORLD BOOK include:

MAIN VOLUMES

World War I
World War II

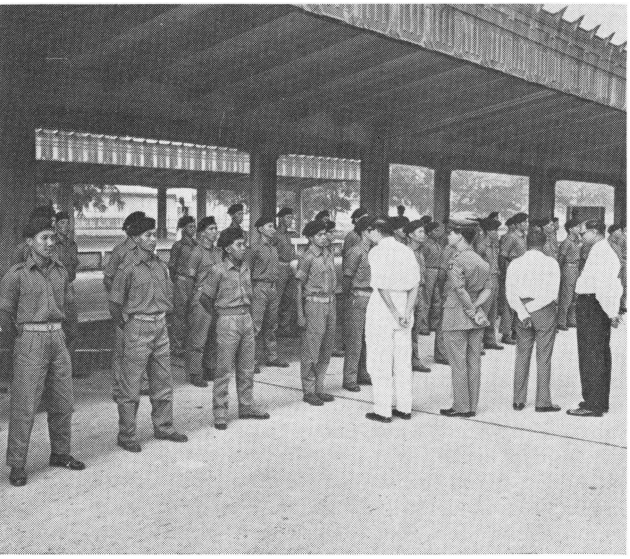
AUSTRALASIAN VOLUMES

Achilles
Anzac
International Co-operation (Regional Alliances)
Kippenberger, Sir Howard
Maori Battalion
Upham, Charles H.
Victoria Cross



Singapore's Army includes many professional soldiers, such as the men of the Singapore Infantry Regiment, *right*. The army also includes many soldiers who serve on a part-time basis, *below*.

Ministry of Culture, Singapore



ARMED SERVICES OF SINGAPORE have been established only since Aug. 9, 1965, when Singapore became an independent nation. Singapore was then faced with the responsibility of establishing its own defence forces. It had to set up a ministry and draw up long-term defence based on the priority of developing an army. National service was introduced in 1967. The decision of the British government in 1968 to withdraw its armed forces by 1971 made necessary the rapid expansion of Singapore's own armed services. The number of battalions increased from two in 1965 to six in 1969. The support arms were correspondingly expanded. By mid-1969, an artillery battalion, a combat engineers battalion and a signals battalion became fully operational.

The Singapore Armed Forces Training Institute (SAFTI) was established in 1966. It provides infantry training up to platoon level, as well as advanced training to officers at company and battalion levels. It also provides specialist training in infantry support weapons, signals, military intelligence and military medicine. In addition to the SAFTI, a school of artillery and a school of field engineers were established. Other schools produce the many skilled personnel required by modern armed services from cooks to aircraft mechanics.

In the build-up of Singapore's armed services, the government has aimed at maintaining a comparatively small full-time army and at building up a reserve army of increasing strength. In the early 1970s, Singapore had full-time army units of two infantry brigades, and a reserve army of 20,000. It expected the annual build-up of reservists to grow to 16,000. The main strength of the National Service Army lies in the reserves. National servicemen do reserve service after completion of two, or $2\frac{1}{2}$ years service in the active battalions. By combining the reserve and active orders of battle, Singapore could field 14 infantry battalions, with the full complement of support arms, in an emergency.

The first step toward the formation of Singapore's own navy began at the end of 1967. At that time, the navy consisted of only one ship, the *RSS Panglima,* a training vessel. By the mid-1970s, the navy had commissioned nine *MGB* (missile gun-boats) to help patrol the approaches to the harbour. The *Pulai Brani* naval base was opened in 1974. In 1973, a midshipman school was set up with the help of the Royal New Zealand Navy to train regular officers.

The Singapore Air Defence Command, formed in 1968, made plans for an effective air defence system. The Flying Training School and the Air Technical School were set up. In 1969, Singapore began to train its own jet pilots in *BAC Strikemasters.* Successful pilots were sent overseas for conversion courses to fly Hunter jets.

By the mid-1970's, Singapore had two Hunter squadrons and a squadron of Allouette helicopters. These aircraft provided local search and rescue facilities. Bloodhound surface-to-air missiles are part of Singapore's air defences.

ARMIDALE (pop. 18,137) is a city in northern New South Wales. It is about 560 kilometres (350 miles) north of Sydney, and 480 kilometres (300 miles) south of Brisbane. It lies about 160 kilometres (100 miles) from the east coast of Australia in the New England Tablelands, a rich grazing and mixed farming area.

The Armidale district is known for its high-quality beef cattle and wool. Farmers in the area also grow barley, oats, wheat, fruit, and vegetables. Armidale's industries include sawmilling, fruit packing, plywood manufacturing, and brick and tile making. Tourists make the city a base for trout angling, bush-walking, and searching for gem stones in the New England district. Air and rail services link Armidale with Brisbane and Sydney.

Armidale is noted for its churches and schools. It is the seat of Anglican and Roman Catholic bishoprics, and has fine cathedrals. It is the home of the University of New England, which has about 4,900 students. The university offers a great number of correspondence courses. The Armidale Teachers' College, founded in 1928, has about 500 students. It houses a collection of Australian paintings.

Squatters first settled in the Armidale district in 1835. The settlement developed rapidly as a wool-producing and gold-mining centre. G. J. McDonald, the district commissioner of Crown lands, named the settlement *Armidale* after his ancestral home in Scotland. Armidale became a town in 1849, a municipality in 1863, and a city in 1885.

ARMY. See ARMED SERVICES OF AUSTRALIA; ARMED SERVICES OF INDONESIA; ARMED SERVICES OF MALAYSIA; ARMED SERVICES OF NEW ZEALAND; and ARMED SERVICES OF SINGAPORE in this volume.

ARNHEM LAND lies in the north-eastern corner of Australia's Northern Territory. Tidal creeks flow through mangrove swamps and thick jungle on the coastal plain that extends 32 to 80 kilometres (20 to 30 miles) inland. A tableland that rises to about 500 metres (1,640 feet) above sea level in the centre of the area is largely unexplored. For location, see AUSTRALIA (colour maps) in this volume.

In 1931, the Australian government set aside 80,808 square kilometres (31,200 square miles) of Arnhem Land, including the islands off the coast, as an Aboriginal reserve. The area is large enough to allow Aborigines to lead their traditional nomadic lives if they wish. About 3,000 Aborigines live in the reserve. Europeans can enter the area only if they have permits from the government. The government and Church organizations maintain many mission stations, including those at Croker Island, Groote Eylandt, Milingimbi, Oenpelli, Roper River, Rose River, and Yirrkala.

Willem van Colster, a Dutch discoverer, sighted the eastern coast of Arnhem Land in 1623. He named the region after his ship. In 1644, Abel Janszoon Tasman charted the coastline of the region.

ART SCHOOLS. See EDUCATION IN AUSTRALIA; EDUCATION IN INDONESIA; EDUCATION IN MALAYSIA; EDUCATION IN NEW ZEALAND; and EDUCATION IN SINGAPORE in this volume.

ARTESIAN WATER is of vital importance to the pastoral industry of Australia. Farmers use it to provide water for their cattle and sheep. Most of Australia's sheep stations lie in areas that have only light rainfall. In many of these areas, farmers rely entirely on artesian water for their stock.

Artesian water lies trapped in porous layers of stone below the surface of the ground. It rises under its own pressure to the surface in holes bored through the layers of rock above it. If it does not reach the surface under its own pressure, but must be pumped out, it is classed as *sub-artesian water*. Most of the water is hot when it reaches the surface. It usually contains mineral salts. Some of it contains so much mineral matter that it cannot be used to water stock. Artesian water is seldom used to irrigate land.

Most of the water is hot when it reaches the surface because of the heat it has absorbed from the interior of the earth during its long period of underground storage. In some places, the water is boiling when it reaches the surface.

The chief artesian basins of Australia include the Great Artesian Basin, which stretches from northern Queensland into New South Wales and South Australia; the Murray Basin; the North-West Basin, in Western Australia; and the Ord-Victoria Basins. The main artesian basin of New Zealand is in northern Canterbury. But artesian water is not as important in New Zealand as it is in Australia.

The Great Artesian Basin is an immense geological depression, filled with sedimentary rocks of mostly Mesozoic age. It is made up of three sub-basins, the Gulf Sub-Basin in the north, the Thomson Sub-Basin in the central region, and the Thallon Sub-Basin in the south-east.

Rock strata of the basin include *aquifers,* which are sedimentary beds that soak up and transmit water. The strata also include *acquicludes,* which are beds that are relatively impervious to the movement of sub-surface water. Water enters the intake areas of the aquifers in the Great Dividing Range and percolates down the sloping aquifers to distant parts of the basin. Thick aquicludes retain the water under pressure in the aquifers, so that when bore holes intersect the aquifers, the water is released and rises towards the surface. Much of the water enters the Great Artesian Basin through intake areas at the head of the Flinders River and its tributaries, and also through a large area around the headwaters of the Baroo, Nogoa, Warrego, and Maranoa rivers. These intake areas include several extensive groups of connected aquifers that are separated by thick aquicludes.

The Bundamba group rocks contain the most extensive and copious aquifers. The Blythesdale group is also widespread, especially in the north. The Marburg formation, while less extensive, also contains important aquifers. Essentially the aquifers consist of new calcareous sandstones with some shale beds. The main aquicludes are the rolling downs group, the walloon coal measures, and the moolayember shales. These layers consist primarily of calcareous shales and clays, and some sandstones.

See also ARTESIAN WELL in the main volumes; GREAT ARTESIAN BASIN in this volume; QUEENSLAND (picture) in the other Australasian volume.

ARTHUR, SIR GEORGE (1784-1854), was lieutenant-governor of Van Diemen's Land (now Tasmania) from 1824 to 1836. He supported transportation, and tried to govern the colony as a convict settlement. He had little interest in the political rights of the free settlers and often aroused their hostility. He resented criticism, and tried to censor the press when it attacked his policies and administration. In 1825, Van Diemen's Land became a colony separate from New South Wales, and received its own Legislative Council. Arthur set up an efficient civil service and did much to put down bushranging in the colony.

The Mitchell Library

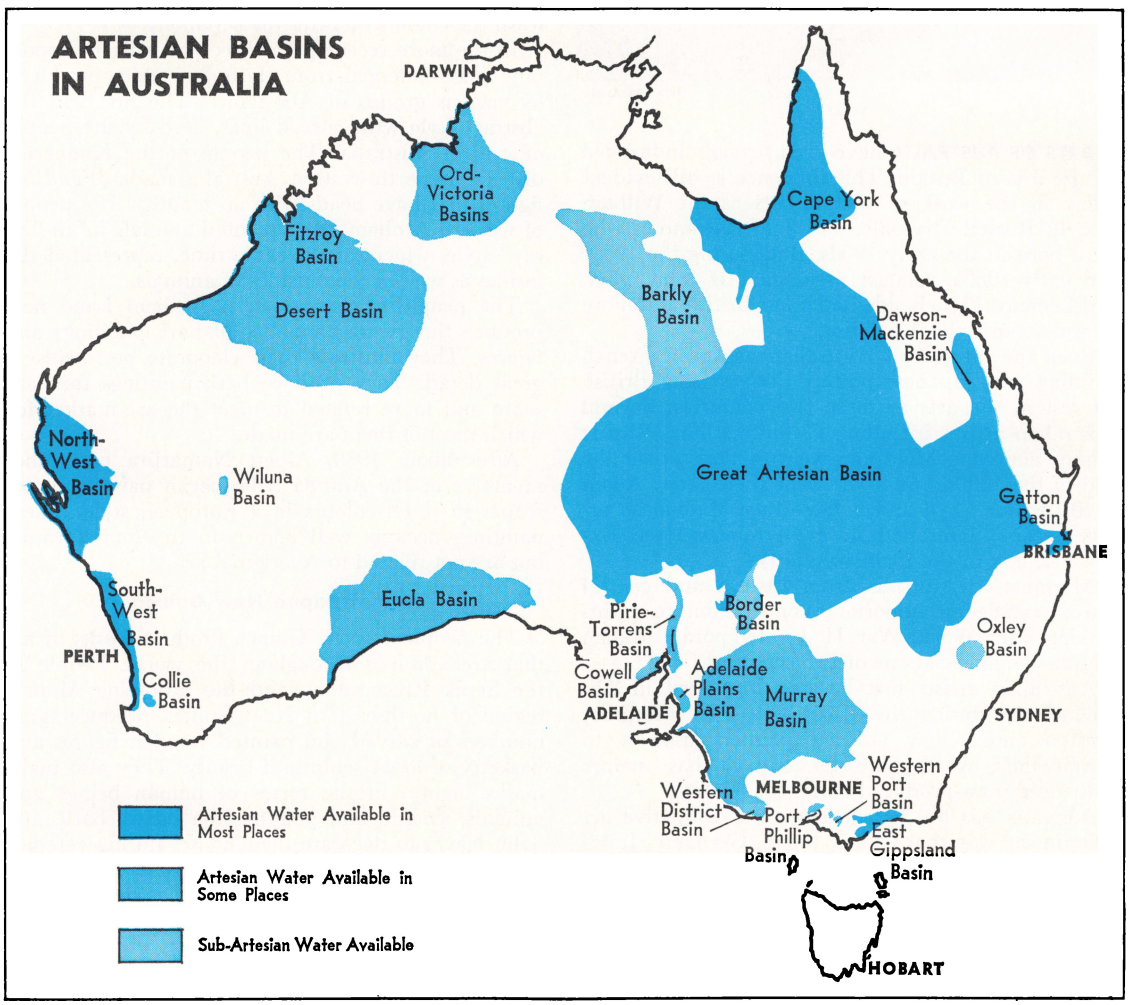
Sir George Arthur

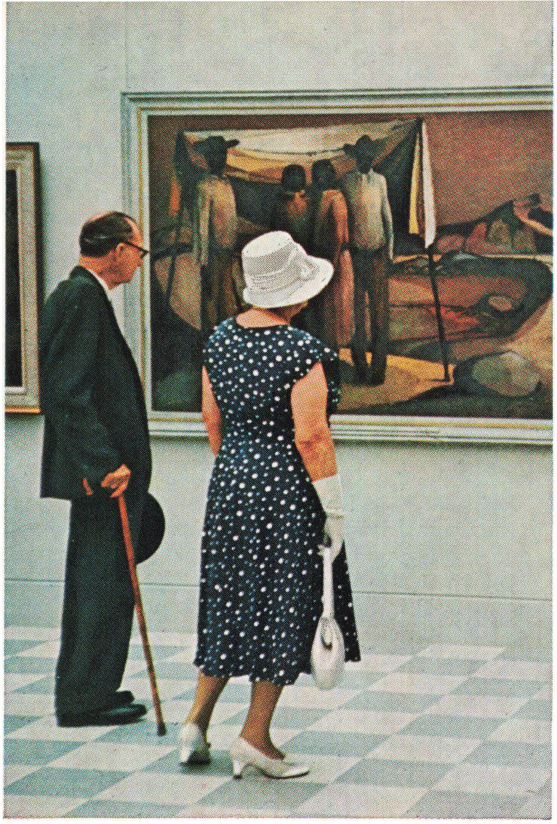
Arthur is best known for his unsuccessful attempt to organize military action against the Tasmanian Aborigines. He formed a line of more than 3,000 soldiers and settlers to drive the Tasmanian Aborigines into the Tasman Peninsula, on the southeast corner of the island. But his men captured only two Tasmanians. In 1832, he established a notorious penal settlement at Port Arthur.

Arthur was born at Plymouth, in England. He joined the army in 1804. He landed in Van Diemen's Land to take up duty as lieutenant-governor in 1824. He was appointed lieutenant-governor of Upper Canada in 1837, and governor of Bombay, in India, in 1842. He published *Observations upon Secondary Punishments* (1833) and *Defence of Transportation* (1835).

See also TASMANIA (History) and TASMANIAN ABORIGINES in the other Australasian volume.

ARTHUR'S PASS is a route across the Southern Alps in the South Island of New Zealand, linking Christchurch, in Canterbury, by road with Greymouth, in Westland. It reaches a height of 926 metres above sea level. The Otira tunnel carries the railway linking Christchurch with Greymouth under the pass. The area around the pass is a national park. Sir Arthur Dobson, a British surveyor, explored the pass in 1864.





Brian McArdle

ARTS OF AUSTRALIA have been strongly influenced by the arts of Britain. This influence is still evident today in the work of such artists as Sir William Dobell, Russell Drysdale, and John Passmore, who were born in the early 1900s. But, during the 1950s and early 1960s, younger men, such as John Olsen and Leonard French, adopted a less British and more international style of painting.

Even the interest of Australian artists in French painting and Japanese pottery derives from British interest in the arts of these two countries. Several Australian artists, including E. Phillips Fox, Rupert Bunny, and Max Meldrum, went to Paris about the end of the 1800s, but fewer went there later. About 1940, Arthur Boyd and a few other Melbourne artists became interested in *expressionism* (see EXPRESSIONISM in the main volumes).

Migrants to Australia from eastern and central Europe made an important contribution to printmaking after World War II. Contemporary Italian sculpture influenced one or two sculptors.

Australian artists first became interested in Aboriginal art during the 1920s. But only Margaret Preston and a few abstract painters used it to enrich their work. Unfortunately, it has mainly influenced mass-produced curios for tourists.

Australia has not yet developed a distinctive art style, in the way that China, Japan, Germany, Italy, France, and, more recently, the United States have achieved national styles in their art. But Australian art, like Australian literature, has been an important means of defining and creating a national identity for a young country. For this reason, many Australian painters, even abstract painters, have been concerned with analysing the appearance of the Australian landscape and defining typical qualities of Australian life. As a result, these painters have produced an art that is recognizably Australian. But the art is Australian more because of its subject matter than because of its style.

Aboriginal Arts

The Aborigines today produce works of art only in the northernmost part of Australia, especially in Arnhem Land. Elsewhere, they no longer live in tribal communities. Some permanent works survive from former times. These works include the enormous figures of animals and human beings carved in outline on rock outcrops near Sydney and in north-western Australia. Paintings on the walls of caves also survive.

The Aborigines used to produce most of their ceremonial art, such as paintings on men's bodies and drawings in the sand, with no thought of its surviving. Similarly, when they produced other works, such as paintings on sheets of bark, they did not intend them to last a long time. The Aborigines of Melville Island carved and painted large tree-trunks and erected them for burial ceremonies. But they left them to fall to the ground and let the rain wash the colours off after the ceremony.

In the more recent past, three particularly important styles emerged from the many styles produced by various groups of Aborigines. The first was the abstract style with curved lines, used by the people of central Australia. The people of the Kimberley district in north-western Australia made *Wondjina* figures that have heads with no mouths. The people of western Arnhem Land painted animals in an "X-ray" style, which, at the same time, represented the insides as well as the outsides of animals.

The people of north-eastern Arnhem Land now produce the greatest number of bark paintings and figures. They illustrate their elaborate narratives in great detail. They produce bark paintings that are more and more refined to meet the art market for which most of them are made.

After about 1939, Albert Namatjira and other members of the Aranda tribe began painting landscapes in water-colours in a European style. These paintings became well known in the tourist trade, but are not related to Aboriginal art.

Arts of Papua New Guinea

The people of New Guinea produce works of art that are admired throughout the world. People in the Sepik River valley and the adjoining Maprik region of north-eastern New Guinea produce large numbers of carved and painted wooden figures and basketry of great sculptural beauty. They also make masks, figures in the forms of human beings and animals, shields, and paintings on board, bark, and palm leaves to decorate their houses during ceremonies. The people of other parts of New Guinea also produce work of great interest to collectors.

Painting

Early Painters include those artists who mainly recorded information. Professional artists on scien-

Courtesy Tasmanian Museum

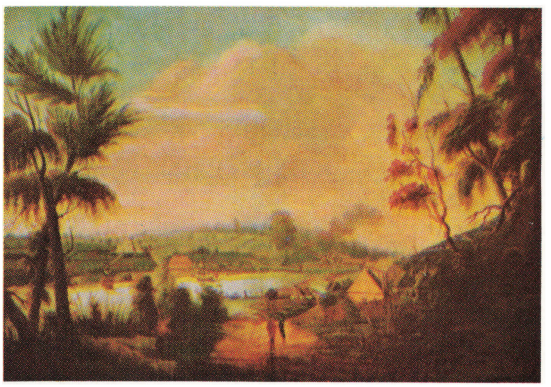
***Mills Plains* by John Glover**

tific voyages of discovery accurately recorded the coastlines and harbours, the plants and animals, and the local people they saw. Some of these painters later used their sketches to produce large oil-paintings and exhibited them in London. William Westall (1781-1850), who accompanied the British explorer Matthew Flinders on his voyage around Australia from 1801 to 1803, was the first such artist to produce work of real quality.

During the early 1800s, many artists roamed the world in search of lands and peoples not yet painted by Europeans. They produced work for illustrated travel books, which were in great demand. They also supplied isolated communities of colonists with portraits and views to send home. Augustus Earle (1793-1838), who spent the years from 1825 to 1828 in Australia, was a typical artist of this kind. After he returned to London, he exhibited *A Bivouac of Travellers in Australia in a Cabbage Tree Forest, Day Break*. This painting of frontiersmen in exotic scenery is one of the first examples of a romantic interpretation of Australian life. Earle may also have intended to stir the imaginations of prospective migrants at the time.

John Glover (1767-1849) settled in Van Diemen's Land (now Tasmania) in 1831, at the end of a successful career in Britain. In Britain, he painted landscapes rather mechanically in the accepted style of the French painters Nicolas Poussin and Claude. His paintings of Van Diemen's Land present the colony in an idealized way.

Conrad Martens (1801-1878) was an artist with the British naturalist Charles Darwin on the voyage of the *Beagle*. In 1835, he settled in Sydney. He stressed the romantic beauty and elegant architecture of the small city. Despite the romantic mood of his pictures, he observed extremely carefully such things as plants and rock formations. For example, he noticed the openness of trees of the eucalypt family and the untidy way in which these trees were scattered over the landscape.



Courtesy Dixson Galleries

***Sydney Cove, 1794* by Thomas Watling**

Courtesy Dixson Galleries

***Subscription Ball, Ballarat* by S. T. Gill**

National Gallery of Victoria

The Lost Child by Frederick McCubbin

Art Gallery of New South Wales

Redfern Station by Arthur Streeton

Until recently, many critics condemned colonial landscape painters for failing to record the true appearance of Australia and for making it look British. But naturalism was not an important feature of European painting until some time after 1800. Scientific artists accurately recorded Australian light and landscape as early as 1810. Even artists such as Glover and Martens were influenced by the demand for information. They painted far more specifically realistic pictures than their contemporaries in Britain.

Most of the earliest Australian painters were amateur artists. Some were semi-professional painters,

Shearing the Rams by Tom Roberts

National Gallery of Victoria

***Mount Martha from Dromana's Hill* by Louis Buvelot**
National Gallery of Victoria

***The Art Students* by E. Phillips Fox**
Art Gallery of New South Wales

such as the convict Thomas Watling (1762-1803), who was transported for forgery. His large view of Sydney Cove in 1794 is probably the oldest surviving Australian painting. The amateur painters were not good observers and painted according to formulas they had learnt in Britain. As a result, many of their Australian landscapes resembled British scenes.

S. T. Gill (1818-1880) introduced another British tradition to Australia—jovial anecdotal illustration. He became best known for drawings of life on the gold-fields in Victoria during the 1850s.

Impressionist Painters were a group of artists who came together in the 1880s. They are sometimes called the *Heidelberg School,* after Heidelberg, a suburban village near Melbourne where they worked for two years. In 1889, they held an exhibition of small landscape sketches that they called *impres-*

***Portrait of a French Officer* by Rupert Bunny**
National Gallery of Victoria

National Gallery of Victoria
***Picherit's Farm* by Max Meldrum**

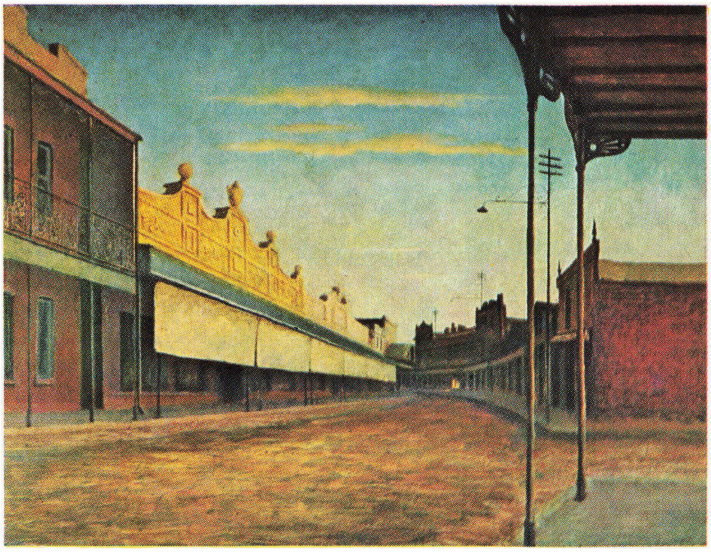
sions. They tried to catch the fleeting effects of light and atmosphere in their sketches.

The main members of this group were Frederick McCubbin (1855-1917), Tom Roberts (1856-1931), Arthur Streeton (1867-1943), and Charles Conder (1868-1909). Louis Buvelot (1814-1888), a Swiss artist who settled in Melbourne in 1865, strongly influenced the group. Buvelot was not an open-air painter himself. But he introduced the modern, realistic style of landscape painting developed by French artists who worked in the open air near the village of Barbizon in the forest of Fontainebleau (see BARBIZON SCHOOL in the main volumes).

Roberts greatly influenced the other Australian impressionists. He studied in Europe from 1881 to 1885. The work of the American painter James Abbott McNeill Whistler probably influenced Roberts in London. Later, this group turned to a more academic style to paint large exhibition pictures on national themes. Most of the followers of this group were simply landscape painters. But one of them, Sir Hans Heysen (1877-1968), managed to make some-

***Portrait of Thea Proctor* by G. W. Lambert**
Art Gallery of New South Wales

Art Gallery of New South Wales
***Grey Day in the Ranges* by Margaret Preston**



Courtesy of J. Landau

***West Wyalong* by Sir Russell Drysdale**

Courtesy of Sir Frank Packer

***Portrait of Brian Penton* by Sir William Dobell**

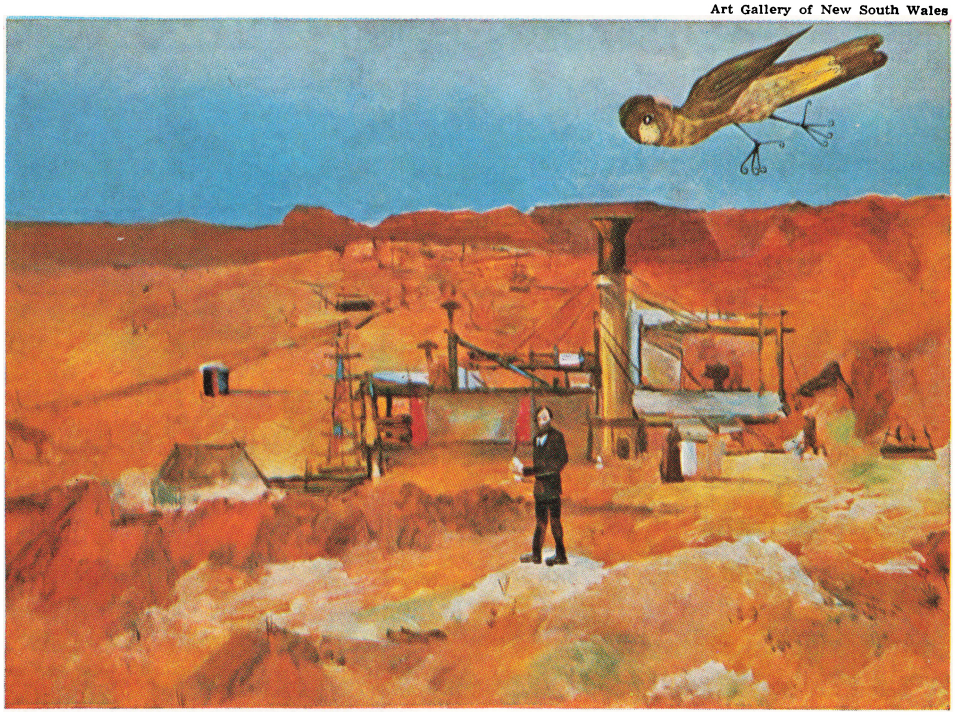
thing almost noble within the limited range of his main subject matter—gum trees.

Other artists such as E. Phillips Fox (1865-1915) and Rupert Bunny (1864-1947) lived at the same time as the impressionists. They are less well known, partly because they lived outside Australia for long periods and did not concentrate on painting Australian themes. But they were probably better painters and more truly *impressionist* than the Heidelberg School.

Conservative Painters dominated the 1920s.. Max Meldrum (1875-1955) returned to Melbourne from France in 1913. He believed that pictures painted in accurate tones dispensed with the need for imagination. G. W. Lambert (1873-1930) returned to Sydney in 1921 from London, where he had become a portrait painter. Unlike Meldrum, Lambert believed that skilful drawing was the essence of good art.

Most of the followers of Meldrum, Lambert, and Streeton were conservative. But some painters, such as Roland Wakelin (1887-1971), Grace Cossington Smith (1892-1969), and Roy de Maistre (1894-1968) in Sydney, and William Frater (1890-)

Art Gallery of New South Wales

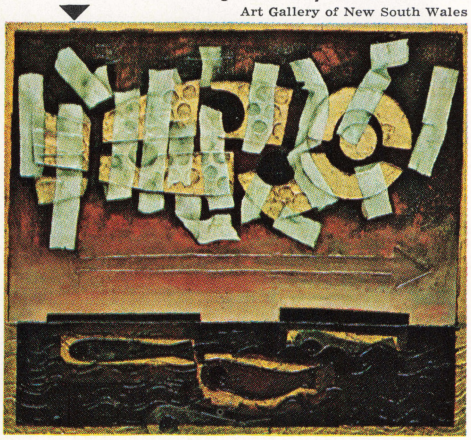


***Pretty Polly Mine* by Sidney Nolan**

Artlovers Gallery

Summer by Godfrey Miller

Death and Transfiguration by Leonard French
Art Gallery of New South Wales



People Who Live in Victoria Street by John Olsen
Courtesy of Barry Stern

Turtle and Temple Gong by Ian Fairweather
Courtesy of James O. Fairfax

Courtesy of G. E. Rodan

The Lost Hunter by Arthur Boyd

and Arnold Shore (1897-1963) in Melbourne, kept in touch with modern developments. Margaret Preston (1883-1963) was probably the best Australian painter working between World Wars I and II. She was the first painter to appreciate Aboriginal art as art and not as anthropology.

Painters of the Mid-1900s continued consciously to interpret Australia. Sir William Dobell (1899-1970), the best-known painter in Australia, produced portraits with deep penetration of character. In 1944, one of his portraits provoked a lawsuit on the grounds that it was a caricature. Sir Russell Drysdale (1912-) became known about the same time as Dobell for his pictures of the red, eroded deserts of the Australian outback.

Sidney Nolan (1917-) and Arthur Boyd (1920-) were both born in Melbourne and later became successful in London, where they settled. They began to use Australian subject matter less for nationalist needs than to express their own personal fantasies. Nolan, in a well-known series of paintings, used the outlaw Ned Kelly as his subject (see KELLY, NED, in this volume). Boyd used scenes of Aborigines in the Australian bush.

Other modern landscape painters include Clifton Pugh, Lawrence Daws, Stanislaus Rapotec, John Coburn, and Fred Williams. The paintings of John Passmore (1904-) and John Olsen (1928-) reflect some of the atmosphere of life in the city of Sydney.

Some painters try to express their own inner worlds, and search for religious and spiritual truths. Many artists in the mid-1950s began painting in an abstract style, encouraged by the example of Godfrey Miller (1893-1964). The paintings of Ian Fairweather (1896-1974) are related to Chinese writing, in which written characters are pictures symbolizing ideas. The works of Leonard French (1928-) include many strong, forceful paintings with religious themes as their subject matter.

Sculpture

Several Australian sculptors have produced works of importance. Sir Bertram Mackennal (1863-1931) produced graceful bronze figures. Rayner Hoff (1894-1937) made formal, modern carvings. Danila Vassilieff (1898-1958) represented dramatic situations in his works, and Gerald Lewers (1905-1962) used birds and animals as subjects. Many of the works of Stephen Walker (1927-) and Norma Redpath (1928-) are based on tree and rock forms. The works of George Baldessin (1939-) show his interest in city imagery. Abstract sculptors include Robert Klippel (1920-) and Clement Meadmore (1929-).

Decorative Arts

Little colonial metalwork exists in Australia. In the mid-1900s, Helge Larsen, a Danish migrant, and Stuart Devlin, a Melbourne industrial designer, produced excellent silverwork. Devlin also designed Australia's decimal coinage.

Merric Boyd (1888-1959), father of the painter Arthur Boyd, became Australia's first important artist-potter. Most modern potters were strongly influenced by stoneware produced by Chinese potters of the Sung dynasty and by modern Japanese potters. The work of John Perceval (1923-), a Melbourne potter, shows imaginative modelling of figures. During the early 1960s, a few potters, such as Marea Gazzard (1928-) and Col Levy (1933-), turned for inspiration to prehistoric and medieval pottery.

Courtesy of Robert Klippel

***Entities Suspended from a Detector* by Robert Klippel**

Aids to Learning

Related Articles in WORLD BOOK include PAINTING in the main volumes. See also the following articles in the Australasian volumes.

Aborigines
Archibald Prize
Architecture
Dargie, Sir William
Dobell, Sir William
Drysdale, Sir Russell
Heysen, Sir Hans
Literature of Australia
Museums and Art Galleries
Music in Australia
Namatjira, Albert
Nolan, Sidney
Papua New Guinea
Theatre
Wheeler, Charles

Outline of this article is as follows:

I. **Aboriginal Arts**
II. **Arts of Papua New Guinea**
III. **Painting**
IV. **Sculpture**
V. **Decorative Arts**

Books to Read about this topic include Bernard Smith's *Australian Painting, 1788-1970.* (Oxford, 1972).

M. Wong

ARTS OF INDONESIA, MALAYSIA, AND SINGAPORE

Craftsmen in Indonesia and Malaysia use wax and dye to produce *batik* cloth, *top*. Chinese craftsmen in Singapore produce beautiful, decorative *calligraphy* (writing), *above*.

ARTS OF INDONESIA, MALAYSIA, AND SINGAPORE resemble each other because Malay peoples live in all three countries. Other peoples, such as Chinese and Indians, have contributed a great deal to the arts of these countries.

Indonesia and Malaysia are famous for their *batik*—cloth decorated by a process of waxing and dyeing. Traditional crafts in the area include making *wayang* (puppets) and working with metals, producing such objects as *krises* (short swords). Sculpture in the area ranges from ancient Hindu stone sculpture to modern wood carving influenced by European styles. Painting was not a flourishing art form until the late 1800s, except in Bali, which has a long tradition of painting.

The earliest arts were those of the Malays who migrated from southern China in the period from about 2500 B.C. to the 100s B.C. (see MALAYS in the other Australasian volume). The culture of these migrants was of an advanced *neolithic* type (see STONE AGE in the main volumes). Historians believe that people of this culture carved the *megaliths*—huge stone representations of men and animals—that have been found in the Pasemah area of southern Sumatra and in several other parts of Indonesia. Characteristic decorations of this culture include realistic figures of ancestors and animals, the so-called *tree of life* pattern, and geometric designs.

The people of Tonkin and northern Annam (now northern and central Vietnam) were among the first in south-eastern Asia to cast bronze. The new technique spread throughout the area from the village of Dong Son in northern Annam. Craftsmen of the Dong Son culture used *symmetrical* (regular) patterns and spiral designs.

The Dong Son style and another important style, the *Late Chou* (or *Huay*) style of China, arrived in the period after 500 B.C. The main symmetrical features of neolithic and Dong Son styles and the *asymmetrical* (irregular) patterns of the Late Chou style have not changed up to the present day. These styles have had an enduring influence on the development of decorative art in the area.

Artists produced works of art on Hindu and Buddhist themes during the period of Indian influence, from the A.D. 400s to 1400s. The spread of Islam during the 1400s, with its discouragement of the representation of any living creature, caused a decline in sculpture and painting. European culture first became an important influence in the 1800s.

ARTS/Crafts

Textile Making. Textiles are woven and dyed in Indonesia and Malaysia by both traditional and modern methods.

Dyeing by the batik method is practised in many parts of Indonesia and Malaysia. The technique has reached its highest level in Java. People using the traditional batik method cover with wax the sections of fabric that they do not wish to dye (see BATIK in the main volumes). Factories in Indonesia and Malaysia now mass-produce batik fabric more cheaply by printing designs on fabrics.

The earliest batik fabrics had drawings on a dark blue background. For this blue background, batik makers used *indigo,* a dye obtained from the leaves of indigo plants. Later, they produced batik fabric in many colours. The most popular colour combination was blue produced by indigo, brown produced by *soga* (another vegetable colouring matter), and white, the colour of the fabric that had not been dyed. Today, combinations of other colours, such as red, green, yellow, purple, pink, and even black, are popular. These colours are particularly popular on batik fabrics produced for making skirts or men's shirts. Synthetic dyes have largely replaced vegetable colouring matter.

Traditional batik makers used geometric designs. Batik makers now also use other patterns. Each batik fabric has a name according to the form of the *motif* (pictorial theme) employed. These motifs can be round, oval, square, or star-shaped. Some patterns have intersecting circles. Some fabrics have flower and leaf patterns combined with figures of animals, birds, and fish in conventional forms. One of the most beautiful motifs is the *sawat* motif, which resembles a *garuda* (mythological eagle).

Weaving in cotton and silk is an ancient craft in Indonesia and Malaysia. The Malays could weave their own cloth even in ancient times because the cotton plant grew in the area. They produced excellent thread with their spindles. They used threads of various colours, including silver and gold, to produce attractive fabrics.

Large, modern weaving mills have largely replaced home looms, and weaving as a home industry has declined. But hand-woven fabrics are still in demand. The patterns of woven fabrics do not differ greatly from those used in other crafts. Decorations include geometric decorative figures, human figures, buffaloes, fish, birds, and trees of life. The ornamentation on the so-called *ship-cloth* from Kroe in southern Sumatra is most unusual. Most Balinese silk fabrics have simple patterns of bands, but some have extremely complicated patterns.

In Malaysia, the areas that are now the states of Kelantan, Pahang, and Trengganu are noted for their silk fabrics. The *kain limau* of these areas are silks coloured with a rich mottled blend of dark reds and greens. The patterns resemble some Indian designs. The Malays use woven fabrics not only for clothing, but also for other household objects, such as curtains, tablecloths, and divan cloths.

Batik Makers once produced cloth with only blue, brown, and white patterns. Today, they make cloth of many colours.

Courtesy Ron Witton

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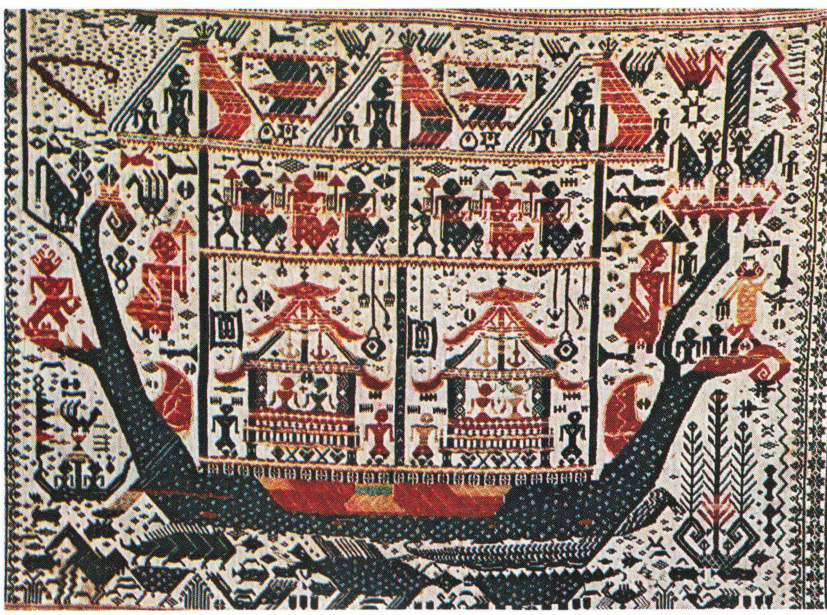

Weavers of Kroe in southern Sumatra produced the so-called *ship-cloth, left.* It probably shows the dead sailing to the land of souls.

ARTS/Crafts

Puppet Making. Most types of wayang are puppets made from leather, from wood, or from a combination of both. Wayang made of wood are usually dressed up with batik skirts. Both leather and wooden wayang are colourfully painted. A wayang performance is a play with puppets as characters. Java and Bali are the main centres of wayang making and wayang performances. See THEATRE in the other Australasian volume.

Leather puppets are called *wayang kulit*. *Wayang kruchil* or *wayang klitik* are many-coloured wooden puppets with leather arms. *Wayang golek* are rounded, clothed wooden puppets.

Pottery, compared with other crafts, has not flourished. The reason is probably that various containers can be made more simply from such materials as bamboo, coconut shells, leaves, and bark. But people in some areas, such as southern Sulawesi and the Kai Islands in the Moluccas, produce excellent pottery. Potters are now taking a great interest in modern techniques of making pottery.

Metalwork. The Malays have known the art of working in metal for thousands of years. In ancient times, they used wax and clay for making casting-moulds into which they poured molten metal.

Iron was used for weapons such as swords, krises, daggers, and lances in ancient times. The people

Noel T. Sweeney, courtesy Ron Witton

Puppets provide entertainment. They include *wayang kulit,* flat leather puppets that cast shadows on screens, *above,* and *wayang golek,* round wooden puppets, *left.*

Pottery did not flourish before World War II. But potters of the Kai Islands in the Moluccas made earthenware cooling jars, *below.*

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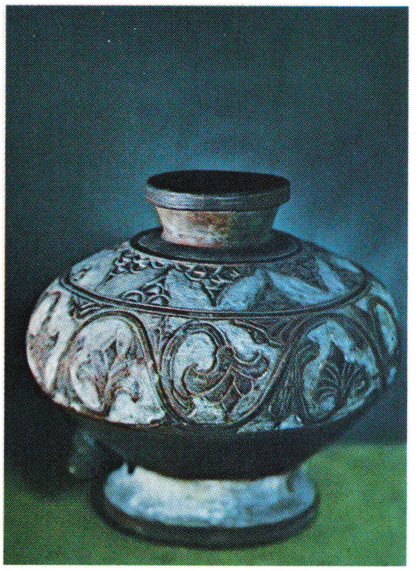
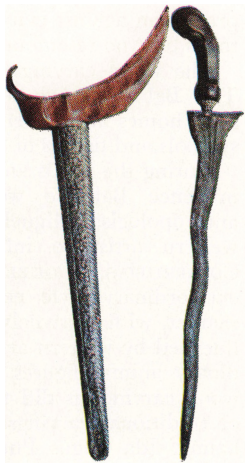
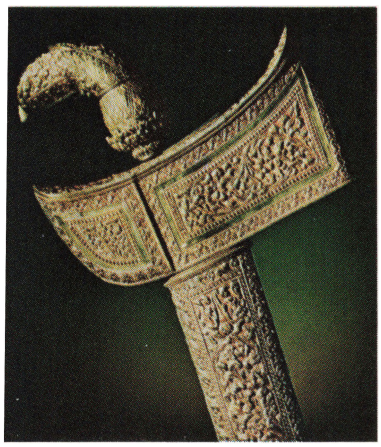


Iron-Work includes the making of *krises* (short swords). The krises are kept in scabbards decorated with plant designs and other patterns. Some scabbards are embossed with gold, *below*.



Courtesy Ron Witton



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also made iron tools and other objects. Some of these objects were beautifully designed. For example, the people of southern Sumatra made wrought-iron containers in the shapes of animals such as stags and snakes.

Krises are short iron swords. Many krises have beautifully decorated blades and hilts. The blades are straight, curved, or wavy, and are decorated with mythological figures and leaf patterns. The hilts have the shape of various figures, including *raksasas* (giants) and lions' heads. Armourers in Bali, Java, Sumatra, and the Malay Peninsula still make krises. Javanese armourers are particularly famous for their krises.

In former times, the Javanese regarded the *empu* (armourer) as someone who had magic powers. They regarded the kris itself as a magic weapon. But belief in the magic power of the kris is declining. Many Javanese used to carry krises as a symbol of dignity, but this ancient custom is dying out.

Bronze, an alloy of copper and tin, arrived with the Dong Son culture. People of this period cast in bronze such things as small statues of gods, various tools and objects for religious purposes, and gongs for the gamelan orchestras. The last Malay cannons used against the Portuguese invaders were made of bronze. The art of bronze casting reached its peak in the period of Indian influence.

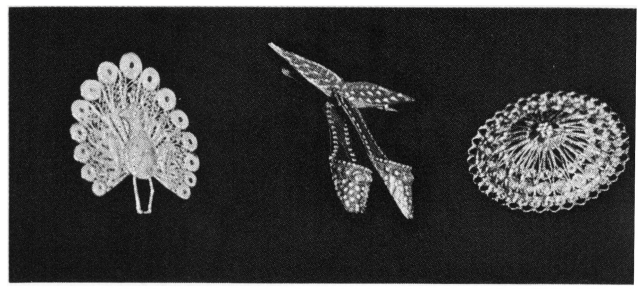
Brass, an alloy of copper and zinc, replaced bronze to a great extent. It was cheaper than bronze, and easier to work. The oldest brass objects are perhaps armlets and anklets, which were worn by the Batak women of northern Sumatra, the Dyak women of Borneo, and the women of the Sumba, Flores, Babar, and Aru islands. Brass-workers in Java produced such articles as kettles, bowls, basins, trays, plates, and receptacles for betel nuts. They decorated these articles with figures from Hindu-Javanese mythology, such as wayang characters, garudas, and *nagas* (snakes). They combined these figures with patterns of leaves, lotus and other flowers, and fruits. They also used geometric patterns of the Dong Son type as well as zigzag lines, spirals, swastikas, and other figures.

The Batak and Minangkabau peoples of Sumatra and the peoples of the coastal areas of southern Kalimantan and around Lake Matana in Sulawesi produce brass objects of high artistic value in traditional styles.

Gold and Silver. Only the people in areas where the influence of Hinduism was strongest worked in precious metals. People in Java, Bali, the Malay Peninsula, coastal districts of Borneo, and large areas of Sumatra still work in gold and silver. Metalworkers decorate gold and silver objects with well-known Hindu characters, such as wayang figures and figures of animals from Hindu legends.

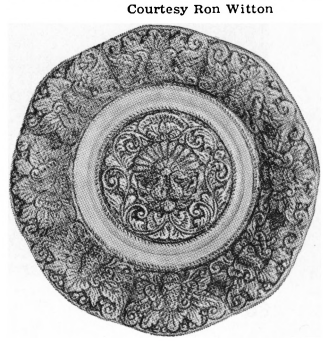
Authenticated News

Brass-Work includes lamps representing *garudas* (mythological eagles). They provide light for shadow puppet plays.



Courtesy Ron Witton

Silver-Work includes fine jewellery, *above*, and exquisite plates embossed with plant patterns, *right*.



ARTS/Wood Carving

In former times, the people of Indonesia and Malaysia decorated a great number of wooden objects with carvings. For example, they carved sword hilts, shields, prows of boats, supports for gongs in gamelan orchestras, and the fronts, posts, and horizontal beams of houses.

The Toba Batak people of Sumatra still decorate the fronts of their houses with traditional patterns, such as spirals. These patterns show the influence of the ancient Dong Son culture. The Minangkabau people of Sumatra use patterns that show strong Hindu influences.

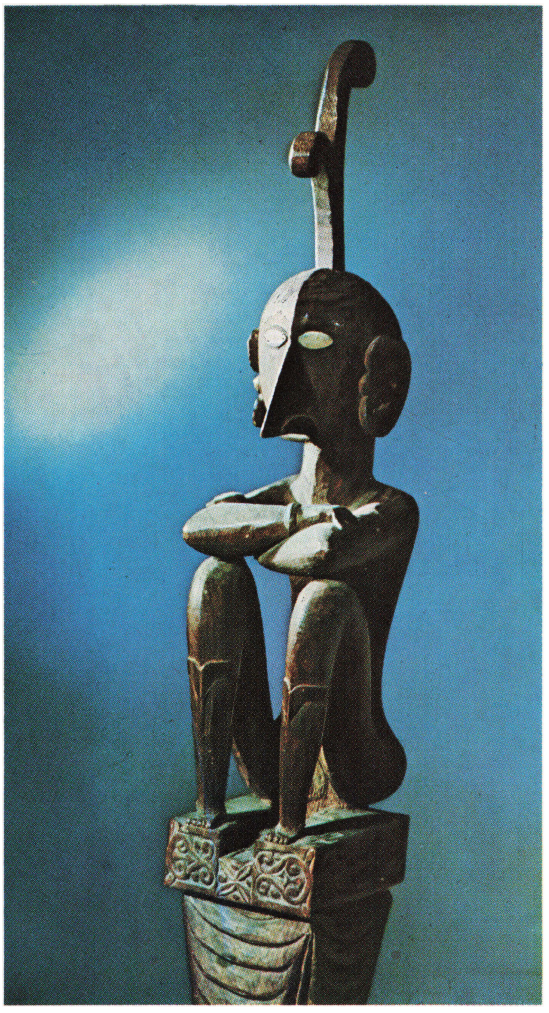
Japara, on the northern coast of central Java, is the most outstanding centre of Java's wood craft. People there still carve in Hindu-Javanese styles as well as in more traditional styles.

In some areas, people erect wooden statues of human figures for the purpose of ancestor worship. People in Nusa Tenggara and the Moluccas carve figures depicting their ancestors. They show the figures seated, with arms crossed and resting on their knees. Dyaks carve figures called *hampatongs* to give protection against evil spirits. Most of these hampatongs bear no resemblance to human figures.

The wood carvings of Bali are most impressive. The Balinese have ornamental wood carvings in their homes and in temples. The carvers use Hindu symbols and figures of Hindu gods.

During the 1920s and 1930s, western art began to influence Balinese wood carving. The Mexican anthropologist Miguel Covarrubias was the first western artist to influence Balinese artists (see COVARRUBIAS, MIGUEL, in the main volumes). An extraordinary style emerged. The figures became slender, with extremely long arms. Wood carvers influenced by western art also chose new subjects. Ordinary animal figures became popular subjects for wood carving, as did the mythological beast figures of traditional carvings. Sculptors such as I Gerembaung, Ida Bagus Putu, Ida Bagus Njana, and I Rangkus experimented with new styles.

Today, Balinese wood carving combines both European and traditional Balinese styles, but preserves a distinctive Balinese quality. Some present-day Balinese wood carvers display a keen sense of humour in their carvings.



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Courtesy Ron Witton

Wood Carving includes masks such as those done by the people of Bali, *above*, statues of ancestors done by the people of Timor, *far left*, and carved bamboo containers done by the Dyaks of central Kalimantan, *left*.

ARTS/Sculpture

In ancient times, the Malays erected and carved megaliths for the worship of the dead. During the period of Indian influence, the Malays built magnificent Hindu and Buddhist *candis*—monuments of stone designed to preserve the ashes of dead princes. They adorned them with statues and *bas-reliefs* (see RELIEF in the main volumes). The sculpture on these temples represented gods, demons, mythological animals, and episodes from sacred stories. The art of sculpture flourished during this period. Most sculpture was used on candis. The most famous candis are Borobudur and Prambanan.

The art of sculpture in Java declined as Indian influence declined. But, after Indonesia declared its independence in 1945, young artists, mainly painters, started to take up this neglected art again. They employed the simple technique of the tombstone-carvers who lived around the city of Yogyakarta.

During the 1960s, Indonesian artists made impressive statues and monuments in Jakarta. Their works depicted the national and revolutionary spirit of the people. Sculptors also revived carving in bas-relief. They decorated many important public buildings with bas-reliefs. Important sculptors include Amrus, Edy Sunarso, Sayono, Nji Tjokrosuharto, and many prominent painters.

Present-day Malaysian sculptors work in wood, metal, and cement. They include Alan Choo Peng Lock, Anthony Lau, Michael Muthu, and Cheong Laitong, who is better known as a painter.

George Holton, Photo Researchers

Traditional Balinese Sculpture of great vitality decorates the island's many Hindu temples.

Traditional Javanese Sculpture, such as the reliefs of Borobudur, decorates Buddhist and Hindu temples.

Helen and Frank Schreider, Photo Researchers

ARTS/Painting

Modern Painting. The first Indonesian painter to introduce a western way of painting was the Javanese painter Raden Saleh Sjarif Bastaman (1807-1880). In 1830, he went to Europe and studied painting. He was much influenced by the French painter Eugène Delacroix. He was well known for his paintings of animals and for his portraits. At Jakarta, he kept animals in cages in order to study them more closely. His painting *Between Life and Death* depicts a fight between a bull and two lions.

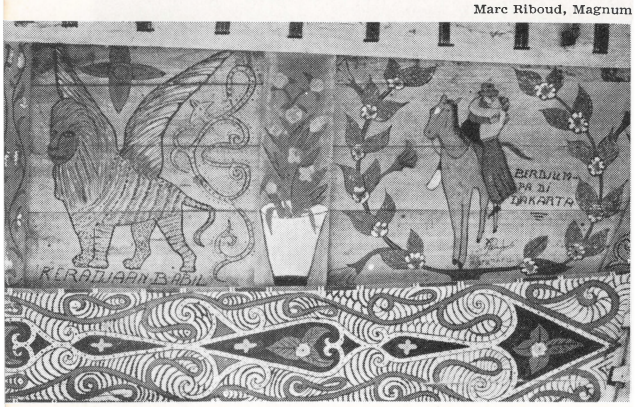
The next painter who made use of western techniques did not appear for more than 20 years. Raden Abdullah, who also studied in Europe, became well known for his landscapes. Raden Abdullah could be classed among the artists known as the *Oost-Indische Kunst* (East Indian Art) group. Its members were mainly Dutch painters, such as Kasenda, Adolfs, and Dezentje. They attempted to depict Indonesia as a colourful and romantic land.

In 1938, a strong reaction against this trend developed. In that year, the *Persagi* (Painters' Union) was founded in Jakarta under the leadership of Sudjoyono. He and his group criticized Raden Abdullah's style of painting, which, they said, was concerned only with the beauty of the Indonesian landscape. Some critics regard the establishment of Persagi as the starting-point of a truly national development in Indonesian fine art. They saw in the group a sincere effort to give a new emphasis to self-expression that reflected their national consciousness. They hailed Sudjoyono as the pioneer of the modern artists in Indonesia.

During the Japanese occupation, new painters became prominent. Among them were Affandi, Resobowo, Hendra, Kusnadi, Barli, Kerton, Mochtar Apin, Baharudin, Surono, Harjadi, Sularko Hadi, and Ngendon. The Japanese authorities tried to use artists to spread their political ideas. During this period, the Indonesian people began to take a greater interest in fine arts. Exhibitions and art courses were held more often than before. This interest increased after Indonesian independence.

Batak Artists of northern Sumatra decorate wooden houses in their villages in their own popular traditional style.

Marc Riboud, Magnum



Artists searched for and experimented with new methods and ideas. The results were not always satisfactory. But the spirit and the will to find and create something worthwhile were there. Unions of artists emerged in some cities and towns where they had never existed before. Sudjoyono established the *Seniman Indonesia Muda* (Young Indonesian Artists' Association) in 1946 at Madiun. Affandi started the *Pelukis Rakjat* (People's Artists) at Yogyakarta. Similar organizations were set up at Jakarta,

Balinese Artists now paint with depth and perspective instead of the flat traditional style. But they have retained the decorative quality of traditional painting.

Courtesy D. W. Evans

Bandung, and Surabaya in Java, at Medan in Sumatra, at Makasar in Sulawesi, at Ubud in Bali, and in various other places. In 1950, the government founded the first Academy of Fine Arts, at Yogyakarta. Soon afterwards, it established the Faculty of Fine Arts at the Institute of Technology in Bandung.

Sudjoyono's justification for the change in his method of painting from expressionism to realism was characteristic of the period. He stated bluntly that the people needed a realistic approach to life. For this reason, they needed realism in art. Painters such as Trisno Sumardjo violently criticized his views. The communist artists organized themselves in *Lekra* (Institute of People's Art). They supported the idea of *socialist realism.*

Young Indonesian artists began to produce outstanding works. They include Kusnadi, Oesman Effendi, Zaini, Wakidjan, Nashar, and Sutiksno. In particular, the first three stimulated experiments in painting detached from any political ideas and arguments.

Some Malaysian artists, such as Cheong Laitong, Cheong Soo-pieng, and Lee Joo For, have achieved international reputations as painters. Chuah Thean Teng is a leading batik painter. Other well-known painters of Malaysia and Singapore include Abdul Latiff, Syed Ahmad Jamal, Chen Wen Hsi, Mohammed Hoessein, Ismail Mustam, Khoo Swee Hoe, Jolly Koh, Patrick Ng Kah Onn, Yeoh Jin Leng, and Nik Zainal Abidin.

Balinese Painting survived as a flourishing art largely because Hinduism remained the religion of the island. Traditional painting in Bali, like sculpture, depicted Hindu gods and scenes from Hindu literature, particularly the *Ramayana.* Balinese painters presented Hindu subjects in a highly decorative style with flat patterns. They incorporated into their paintings leaves, flowers, animal figures, and other Hindu motifs. They painted in water-colours on a variety of materials, including bamboo vessels, ceramic objects, flat beaten *bast* (bark), textiles, and wood.

Balinese painters began to change the style of their work when they came into contact with European artists. Two European painters living in Bali, Walter Spies and R. Bonnet, strongly influenced the new style in Balinese painting. Balinese painters ceased to paint only traditional Hindu themes. They began to take their subject matter from everyday life. They ceased to paint flat patterns and developed depth and perspective. But their work retained decorative qualities. For economy, they continued to paint in water-colours rather than in oils. Mas, Ubud, and Batuan became the main centres of the new style of painting.

In their everyday life, the Balinese people like a variety of bright colours. But most Balinese artists depict Balinese scenes in dull colours, particularly browns and greens.

Bali, because of its distinct culture, has become a favourite place for tourists. As a result, many painters produce work for sale to visitors, much of it of poor quality. But several Balinese artists still produce paintings of high quality. They include I Bagus Gde Sobrat, Ida Bagus Made, Sukangadje, I Wayan Tohdjiwa, and I Wayan Pendet.

Aids to Learning

Related Articles in the Australasian volumes of WORLD BOOK include:

Architecture
Literature of Indonesia
Literature of Malaysia and Singapore
Museums and Art Galleries
Music in Indonesia
Music in Malaysia and Singapore
Theatre

Outline of this article is as follows:

I. **Crafts**
   A. Textile Making
   B. Puppet Making
   C. Pottery
   D. Metalwork
II. **Wood Carving**
III. **Sculpture**
IV. **Painting**
   A. Modern Painting
   B. Balinese Painting

Books to Read about the arts of Indonesia include Frits A. Wagner's *Indonesia: The Art of an Island Group* (Methuen, 1962).

Arts of New Zealand

Athletes
by Greer Twiss

Birch Rising Photography, courtesy City of Auckland Art Gallery

ARTS OF NEW ZEALAND range from the traditional carving of the Maoris to the painting, sculpture, and pottery of the Europeans. The arts of both the Maoris and the Europeans of New Zealand differ significantly from those of Polynesians and Europeans in other countries because New Zealand is isolated geographically.

The traditional arts of the various Polynesian peoples have some similarities. But they differ greatly from area to area. The people of the Marquesas, thousands of miles away from New Zealand, are the only Polynesians whose arts resemble those of the Maoris. Most Maori carving is extremely complex and elaborate. The Maoris carved human figures in contorted and writhing positions. They decorated the figures with spirals. See MAORIS (Arts and Crafts) in the other Australasian volume.

Painting of a European type was first done in New Zealand by explorers, draughtsmen, and adventurers. They tried to record the landscape and early settlements in their paintings but were influenced by their memories of Britain. New Zealand bush in many of their paintings looks like British forests. William Hodges (1744-1797) was typical of these early painters. He was a draughtsman who visited New Zealand with the British botanist Sir Joseph Banks on the second voyage of the British explorer James Cook. Hodges painted *Dusky Bay* in 1773. The New Zealand Company draughtsman Charles Heaphy (1820-1881) recorded new sites for possible settlements in finely detailed water-colours. To these men, painting was an extension of their everyday occupations. After the colony was established, painting developed as a separate activity.

From 1850 to 1870, amateur painters began to produce polite and accomplished water-colours. People regarded these water-colours as signs of culture and civilization. In their paintings, the artists reflected the hopes and desires of the settlers in New Zealand. They tried to impose a pattern on the landscape in their paintings in the same way that the settlers tried to create order with their axes and ploughs. These painters included clergymen, such as John Kinder (1819-1903), drawing-masters, such as John C. Hoyte (1835-1913), and politicians, such as James Crowe Richmond (1822-1898). The Maori Wars affected few painters. But the adventurer Gustavus Ferdinand von Tempsky (1828-1868) left an exciting record of the wars before he was killed in the fighting. During the 1870s, William Matthew Hodgkins (1833-1898), the father of New Zealand's most famous painter, formed a group of landscape painters in Dunedin. This group painted scenes of misty mountains and lakes on the model of the

Courtesy Alexander Turnbull Library

H.M.S. North Star Destroying Pomare's Pa
by Major Cyprian Bridge

Courtesy Tate Gallery

Two Seated Women with Flowers
by Frances Hodgkins

Courtesy Alexander Turnbull Library

Mount Egmont from Southward
by Charles Heaphy

The Matai Hop Gardens, Nelson
by John C. Hoyte

Courtesy Alexander Turnbull Library

British painter J. M. W. Turner (see TURNER, JOSEPH MALLORD WILLIAM, in the main volumes).

In 1890, three professional painters who were in touch with art movements in Europe arrived in New Zealand. These men gave young painters in New Zealand their first contact with serious artists. The Italian painter Girolamo Nerli (1836-1926) arrived in New Zealand from Australia, where he had influenced art groups. James Nairn (1859-1904) arrived from Glasgow and became an art instructor

Courtesy City of Auckland Art Gallery

The Arrival of the Maori in New Zealand
by Charles Goldie and L. J. Steele

Kingsley Watson, courtesy City of Auckland Art Gallery

Four Waterfalls
by Colin McCahon

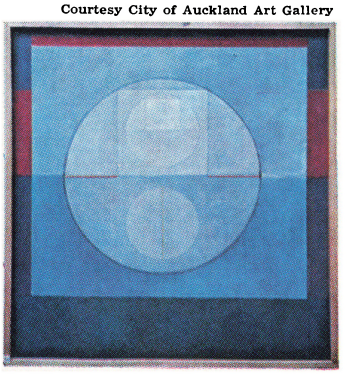
City Spanning Canal
by Robert Ellis

Courtesy City of Auckland Art Gallery

Figure in Light
by Patrick Hanly

Courtesy City of Auckland Art Gallery

Courtesy City of Auckland Art Gallery



Emblem X 1963
by Milan Mrkusich

New Zealand Pottery

Pottery
by Leonard Castle

Arne Loot Photography

in Wellington. The most important of the three was the Dutch painter Petrus van der Velden (1837-1913). He had impressed the Dutch painter Van Gogh, who was then a young man. In his landscape paintings, Van der Velden tried to express the spiritual significance that he found in the dramatic effects of light in nature.

These three men strongly influenced a generation of New Zealand painters, including Frances Hodgkins (1869-1947). She was the only early New Zealand painter to receive recognition in Europe. In 1901, she left New Zealand and went to Europe, where she studied and taught for more than 40 years.

In Europe, she was able to see paintings at a time when major changes were occurring in art. She gained confidence there to develop her own bold way of using water-colours and oil-paints to express the world around her. She travelled a great deal. She often avoided friends and art dealers so that she could work constantly.

Nerli, Nairn, and Van der Velden introduced serious painting to New Zealand. But they also caused many young artists to leave the quiet colony of New Zealand for the Bohemian life of Europe that they represented. From about 1900 to 1930, no paintings of any worth appeared in New Zealand.

Gottfried Lindauer (1839-1926) and Charles Frederick Goldie (1870-1947) painted portraits of Maoris as historical records. Peter McIntyre (1910-) also produced historical records as New Zealand's official war artist during World War II.

Painters searching for a national identity inevitably became bound up with the landscape of New Zealand. M. Toss Woollaston (1910-) has been influenced by major European painting movements of the early 1900s. He paints landscapes and portraits in quiet colours. Rita Angus (1908-) paints landscapes. Her careful, precise paintings remind people of early New Zealand paintings. Colin McCahon (1919-) is the most influential of these painters. New Zealand and its landscape are always obvious in his paintings. In some paintings, he comments bitterly on his environment. In other paintings, he presents New Zealand as offering a "promised land". He uses words in his paintings to emphasize his feelings.

Doreen Blumhardt

An exhibition of British abstract painting in 1958 freed New Zealand painters from timidity of expression. Most New Zealand painters had not had the opportunity to see paintings like them before. Many painters changed from painting landscapes to dealing with cities and the problems of city people.

Some painters, such as Patrick Hanly (1932-), have studied and worked in Europe and returned to live and paint in New Zealand. Hanly has painted several series of paintings on various subjects. His major series are *Fire, Showgirl,* and *Massacre of the Innocents.* All three series are concerned with a destructive and menacing environment. His *Figure in Light* series, painted in New Zealand, presents solitary nude figures and family groups.

Robert Ellis (1929-) was born in Britain and studied at the Royal College of Art. He settled in New Zealand as an art-school lecturer. His main series of paintings, *Cities,* concerns the idea of a city as a growing complexity and an extension of a human being set in a vast world landscape. Milan Mrkusich (1925-) is largely a self-taught artist. He paints *emblems* (symbols) of shifting water and light, and of the human mind and spirit.

Sculpture is the least widely practised of the arts in New Zealand. Few exhibitions are held and few pieces of sculpture have been commissioned for public display. Greer Twiss (1937-), working in his own foundry, has produced bronzes of athletes and protest marchers. Paul Beadle (1917-), Dean of the Auckland University Fine Arts Faculty, works mainly in wood. He carves abstract figures and forms.

Molly McAllister takes people as her main subjects. She works in concrete and various modelling materials. W. D. Allen (1922-), an art-school lecturer, is interested in organic shapes and structures in relation to the human form and environment. Allison Duff works in metals, in modelling materials, and in stone. She has produced rugged heads of well-known New Zealanders.

Pottery is gaining increasing attention in New Zealand. New Zealand potters now have more authority and technical skill than at any time since the beginning of studio pottery during the 1920s. Most potters use natural local clay and glazes.

Leonard Castle (1924-) began working as a potter in 1947. He worked at the pottery of the British potter Bernard Leach in Britain in 1956 and 1957. He now works full-time producing stoneware. Doreen Blumhardt (1914-), a self-taught potter, also works in stoneware.

Barry Brickell (1935-) is also a full-time potter. His rich salt-glaze pots have a distinctly South Pacific appearance. Helen Mason (1915-) works in stoneware. She expresses her special regard for Japanese ceramics in her work. Peter Stitchbury (1924-) also studied with Bernard Leach and with the British potter Michael Cardew in Nigeria. His sturdy, practical stoneware shows the influence of these two potters. Graeme Storm (1936-), a full-time potter, produces stoneware and earthenware. Mirek Smisek (1925-) was born in Czechoslovakia and later migrated to New Zealand. He works full-time as a potter. He is highly skilled in producing pots with salt glazes.

Related Articles in the Australasian volumes of WORLD BOOK include:
Clark, Russell
Lee-Johnson, Eric
Taylor, Mervyn

ARTS OF SINGAPORE. See ARTS OF INDONESIA, MALAYSIA, AND SINGAPORE in this volume.

ASAHAN is one of the major rivers of the Indonesian island of Sumatra. It flows eastwards from Lake Toba over the Asahan Falls, through forested plains in eastern Sumatra, and into the Strait of Malacca near Tandjungbalai.

ASHBURTON (pop. 13,312) is a town in the South Island of New Zealand, about 80 kilometres (50 miles) south-west of Christchurch. It is the chief town in the central part of Canterbury and is the market centre of a prosperous sheep-farming and wheat-growing area. The main business area stands on the northern bank of the Ashburton River and has wide streets lined with tall oak and elm trees. The Domain, Ashburton's chief park, is noted for its fine gardens. Ashburton has about 25 factories. They employ more than 2,100 people. Each year, these factories produce goods worth more than NZ $14 million. Products from Ashburton factories include bricks, furniture, leather goods, processed foods, and textiles.

Settlers from Britain established a settlement at Ashburton in about 1856. They called their settlement Turtons, after the owner of the first hotel in the area. Later, they re-named the settlement after Lord Ashburton, one of the earliest supporters of the Canterbury Association.

ASHES, THE. See CRICKET (History) in this volume.

ASHTON-WARNER, SYLVIA. See LITERATURE OF NEW ZEALAND in this volume.

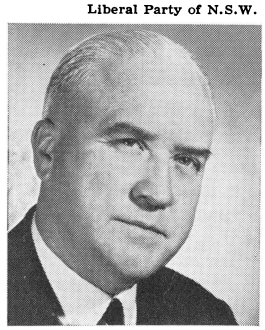
ASIAN AND PACIFIC COUNCIL (ASPAC) is an association of countries of the Asian and Pacific region. The council members believe their close co-operation can contribute to their well-being, promote international understanding, and strengthen Asian and Pacific solidarity. The association was formed in 1966 with Australia, China (Nationalist), Japan, Korea, Malaysia, New Zealand, the Philippines, Thailand, and Vietnam as members, and Laos as an observer at all meetings.

ASPAC is not a military or political alliance directed against any other country, and other countries from the region may join the council. Members discuss matters of regional interest and consider and carry out projects of mutual interest.

ASIAN GAMES. See ATHLETICS (Competitions) in this volume.

ASKIN, SIR ROBERT (1908-), leader of the New South Wales Liberal party, became premier of New South Wales in 1965. He became a member of the Legislative Assembly for Collaroy in 1950 and deputy leader of the opposition in 1954. In 1959, he was elected leader of the party. He was knighted in 1972. He was born in Sydney, and joined the staff of the Rural Bank. During World War II, he served with the second Australian Imperial Force.

Sir Robert Askin
Liberal Party of N.S.W.



ASPAC. See ASIAN AND PACIFIC COUNCIL in this volume.

ASSOCIATED PULP AND PAPER MILLS (A.P.P.M.) is a major group of Australian companies producing and processing forest products. The group is the leading producer of fine printing and writing papers, magazine papers, coated papers, and special wrappings. Group operations also include forestry, logging, producing wood chips, farming, quarrying limestone, mining and processing clay, converting paper, and producing sawn timber, particle board, hardboard, and other building materials. The group also markets paper.

A.P.P.M. employs about 6,000 people and has more than 12,500 shareholders. Its main centre of operation is at Burnie in Tasmania. A.P.P.M. was established in 1936. It first produced paper at Burnie in August, 1938, using imported pulp. In November, 1938, it produced paper from locally produced eucalyptus pulp.

ASTRONOMY is an important science in Australia. Australian astronomers have made great contributions to the understanding of the universe. They detected the first of the mysterious *quasars* (quasistellar radio sources) and discovered more than half of the known pulsating stars called *pulsars*.

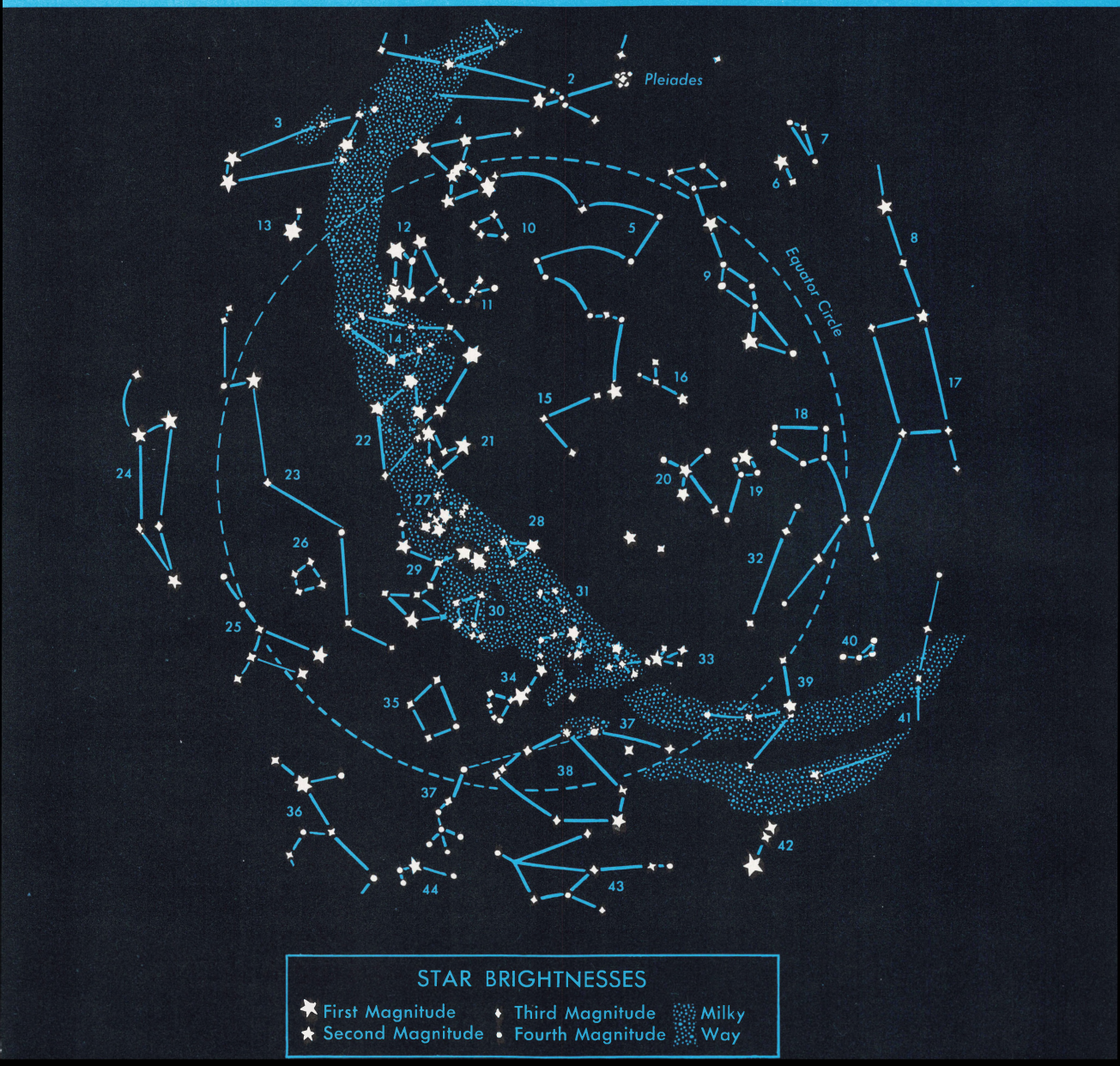
Geography has played a great part in making Australia an outstanding leader in astronomy. The Southern Hemisphere is the best place—in some cases the only place—to observe a large area of the universe. Part of the universe is not accessible or only partly accessible to the big astronomical instruments that are located in the Northern Hemisphere. The centre of the earth's galaxy, the Milky Way, passes directly over Australia. The Clouds of Magellan, which are among the most important clues in unravelling the evolution of the universe, are visible only from the Southern Hemisphere.

Optical Astronomy. The Mt. Stromlo Observatory, on the outskirts of Canberra, has been a centre of astronomy in Australia for many years. Mt. Stromlo is 780 metres (2,560 feet) above sea level. The observatory is operated by the Australian National University (ANU). Its 1,880-millimetre (74-inch) reflector is no longer completely adequate, and light "pollution" from street lights in expanding Canberra suburbs has hampered night-time observations there. As a result, ANU has established a field station at Siding Spring, near Coonabarabran in north-western New South Wales.

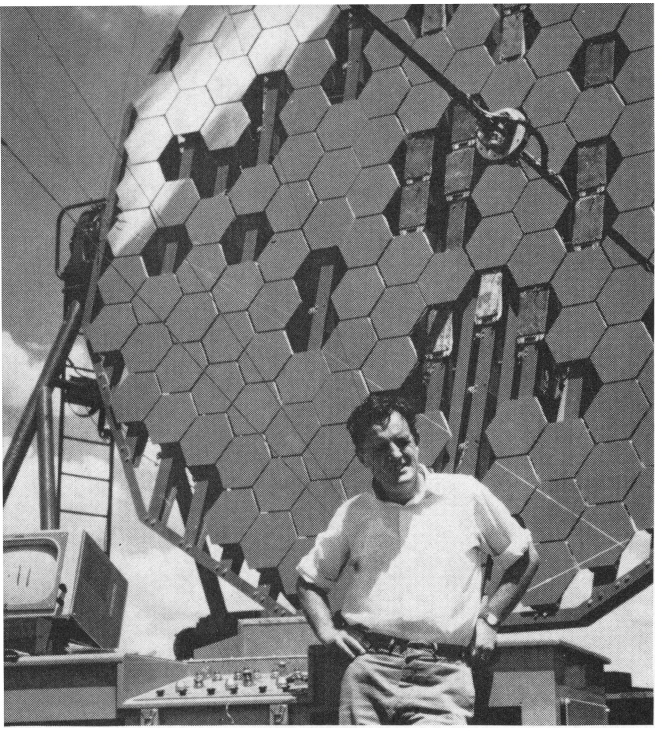
The Siding Spring observatory has a 1,016 millimetre (40-inch) reflector and a 610 millimetre (24-inch) reflector and is installing a 3,810 millimetre (150-inch) optical telescope. A joint Anglo-Australian project costing $A 11 million, this reflector will help make Siding Spring the Southern Hemisphere centre for optical astronomy.

Probably the oddest astronomical instrument in Australia is the stellar interferometer at Narrabri in north-western New South Wales. Sydney University scientists use it to measure the size of stars (see INTERFEROMETER in the main volumes). It consists of two instruments made up of many small mirrors. Each instrument is mounted on rail bogies which move on a small circular railway. Starlight is re-

STAR CHART OF THE SOUTHERN HEMISPHERE



1 Auriga (*Charioteer*)
2 Taurus (*Bull*)
3 Gemini (*Twins*)
4 Orion (*Hunter*)
5 Eridanus (*River*)
6 Aries (*Ram*)
7 Triangulum (*Triangle*)
8 Andromeda
9 Cetus (*Sea-Monster*)
10 Lepus (*Hare*)
11 Columba (*Dove*)
12 Canis Major (*Great Dog*)
13 Canis Minor (*Little Dog*)
14 Puppis (*Poop*)
15 Hydrus (*Little Snake*)
16 Phoenix
17 Pegasus (*Flying Horse*)
18 Aquarius (*Water-Bearer*)
19 Piscis Australis (*Southern Fish*)
20 Grus (*Crane*)
21 Carina (*Keel*)
22 Vela (*Sails*)
23 Hydra (*Water-Snake*)
24 Leo (*Lion*)
25 Virgo (*Virgin*)
26 Corvus (*Crow*)
27 Crux (*Southern Cross*)
28 Triangulum Australe (*Southern Triangle*)
29 Centaurus (*Centaur*)
30 Lupus (*Wolf*)
31 Ara (*Altar*)
32 Capricornus (*Sea-Goat*)
33 Sagittarius (*Archer*)
34 Scorpio (*Scorpion*)
35 Libra (*Scales*)
36 Bootes (*Herdsman*)
37 Serpens (*Serpent*)
38 Ophiuchus (*Serpent-Bearer*)
39 Aquila (*Eagle*)
40 Delphinus (*Dolphin*)
41 Cygnus (*Swan*)
42 Lyra (*Lyre*)
43 Hercules
44 Corona Borealis (*Northern Crown*)



David Beal, Photographic Library of Australia

Australian Astronomers use such equipment as the stellar interferometer at Narrabri in New South Wales.

flected from the mirrors into photo-electric cells mounted at the focal point.

At Culgoora, in north-western New South Wales, the Commonwealth Scientific and Industrial Research Organization (CSIRO) watches the sun to detect solar flares for the National Aeronautics and Space Administration (NASA). The eruptions of gases on the sun unleash potentially deadly proton radiation that might endanger astronauts on a mission. The CSIRO uses a small optical telescope with special filters of Australian design.

Radio Astronomy in Australia is controlled by two main groups, the Division of Radiophysics of the CSIRO and the University of Sydney.

The CSIRO Division of Radiophysics has been a pioneer in radio astronomy. A CSIRO radar facility first discovered radio signals from the sun after World War II. The CSIRO now operates one of the biggest and most accurate radio telescopes, a "dish" antenna 64 metres in diameter located at Parkes in New South Wales. Astronomers used this instrument to pinpoint the first quasar in 1962 (see ASTRONOMY [picture] in the main volumes).

The CSIRO operates a unique sun-watching instrument at Culgoora. Called a radio-heliograph, it consists of 96 separate radio telescope dishes spread around a circle two miles in diameter. By complex electronic switching, it can be made, in effect, into one giant dish that converts radio emissions from the sun into television-like pictures.

The University of Sydney operates the giant Mills Cross at Hoskinstown, 40 kilometres from Canberra. This instrument consists of two intersecting arms, each 1·6 kilometres long. It has been used by scientists to pinpoint more than 20 pulsars.

Another cross-shaped telescope is operated by Sydney University at Fleurs, on the outskirts of Sydney. It consists of 64 5·8-metre "dishes." It was originally used by the CSIRO to make daily radio maps of the sun, but four 14-metre "dishes" have been added, with one dish at the end of each arm. New electronic circuits have also been added. Each arm achieves the same result as would a "dish" antenna 1·6 kilometres in diameter.

The University of Tasmania operates a radio telescope that is used primarily to study radiation from the sun. It consists of a network of wires that is about 1·6 kilometres in diameter.

The Commonwealth Department of Supply, which operates the space tracking network in Australia for NASA, has used one of its antennae, the 26-metre "dish" at Island Lagoon at the Woomera rocket range, to study quasars. These observations are synchronized with an antenna in the United States. The two widely separated antennae have the effect of one giant antenna. The CSIRO's 64-metre Parkes antenna has also been used in experiments concerned with the observation of quasars.

X-Ray Astronomy. Radio and light are not the only "windows" open on the universe for Australian scientists. A scientific team from Tasmania and Adelaide universities have discovered a number of X-ray stars by sending up X-ray detectors on rockets from Woomera rocket range. They also put X-ray detectors aloft on high-flying balloons. British scientists have sent up X-ray detectors from Woomera to look at stars and the sun in the "light" of its X-radiation. In 1969, a combined American-Australian university team sent up a balloon package from Longreach in Queensland. They discovered the first star that emitted gamma radiation.

History. Arthur Phillip, the first governor, set up an observatory at Dawes Point soon after the early settlers landed in Australia, in 1788. Sir Thomas Brisbane founded the Parramatta Observatory in 1822. It became the Sydney Observatory in 1858. Later, other observatories came into being—the Hobart Observatory was established in 1840, the Williamstown Observatory in Melbourne in 1853, the Adelaide Observatory in 1855, the Brisbane Observatory in 1879, and the Perth Observatory in 1896. The Williamstown Observatory became the Melbourne Observatory in 1863. In 1910, the government established Mt. Stromlo Observatory.

Edward Bowen, a British radio-physicist and a pioneer of radar, was largely responsible for the radio telescope at Parkes which was opened in 1961 (see BOWEN, EDWARD, in this volume). The Mills Cross telescope was first used in 1965.

ATHERTON TABLELAND is an area of high, flat land in north-eastern Queensland. Farmers grow tobacco in the irrigated northern district; raise maize in the central district, which lies at a higher level; and keep dairy cattle in the more rugged southern district. The tableland has an average height of about 760 metres above sea level. It rises gradually to the east and south-east, where Mt. Bartle Frere (1,611 metres) forms the highest point in Queensland. Tourist attractions include the Tinaroo Falls Dam and lakes Barrine and Eacham.

Brian McArdle

Starting a Race

After the Finish

Running a Long-Distance Race

ATHLETICS. Track and field sports occupy the leisure time of just over 30,000 young men and women in organized competition in Australia alone. In New Zealand, fewer people compete in these sports, but they form a larger proportion of the population than in Australia. In Indonesia, Malaysia, and Singapore, the sport continues to show growth and development.

The Olympic Games in Melbourne in 1956 and the Commonwealth Games in Perth in 1962 helped the growth of athletics in Australia. The choice of Christchurch for the 1974 Commonwealth Games spurred the development of facilities in New Zealand. But the Australian and New Zealand governments spend little money in building sports facilities or training their youth when compared with their neighbor countries

of southeastern Asia. The stadium at Jakarta, built specially for the Ganefo Games in 1962, is more modern and better equipped than any similar stadium in Australia or New Zealand.

Competitions

Australian and New Zealand athletes compete in the Olympic Games every four years. They also compete in the Pan-Pacific Games, a year after the Olympics, and the Commonwealth Games, two years after the Olympics. Asian area athletes from countries within the Commonwealth compete in these games and in the Asian Games as well. In addition, national championships are held annually in all countries. In Australia and New Zealand, the backbone of competition is the series of inter-club events held in all capital cities each weekend, mainly on Saturdays.

Athletics is virtually compulsory in most schools at all levels. The numbers of people participating are far greater than the actual amateur association memberships indicate in all the countries concerned.

The Little Athletics was started in Australia in the late 1960s to encourage children under the age of 12 to take up athletics. By 1972, about 60,000 young athletes were registered in Australia.

Famous Athletes

Middle and long distance runners have made Australia and New Zealand highly respected in world athletics. An Australian, Edwin Flack, was the first 800- and 1,500-metres champion in modern Olympic competition. An accountancy student in London, he took time off in 1896 to win two gold medals in Athens. Women athletes from the area have succeeded even more than men in major international meetings, particularly since 1945. Australia has produced the finest female sprinters and hurdlers in track history.

Sprinters. Stanley Rowley won Australia's first Olympic sprint medals when he finished third in all three sprint events, the 60, 100, and 200 metres, in the Paris Games of 1900. Nigel Barker of Australia won similar medals at the "unofficial" Athens Games in 1906. In 1924 another New Zealander, A. E. Porrit, took third place in the 100 metres in the Paris Games.

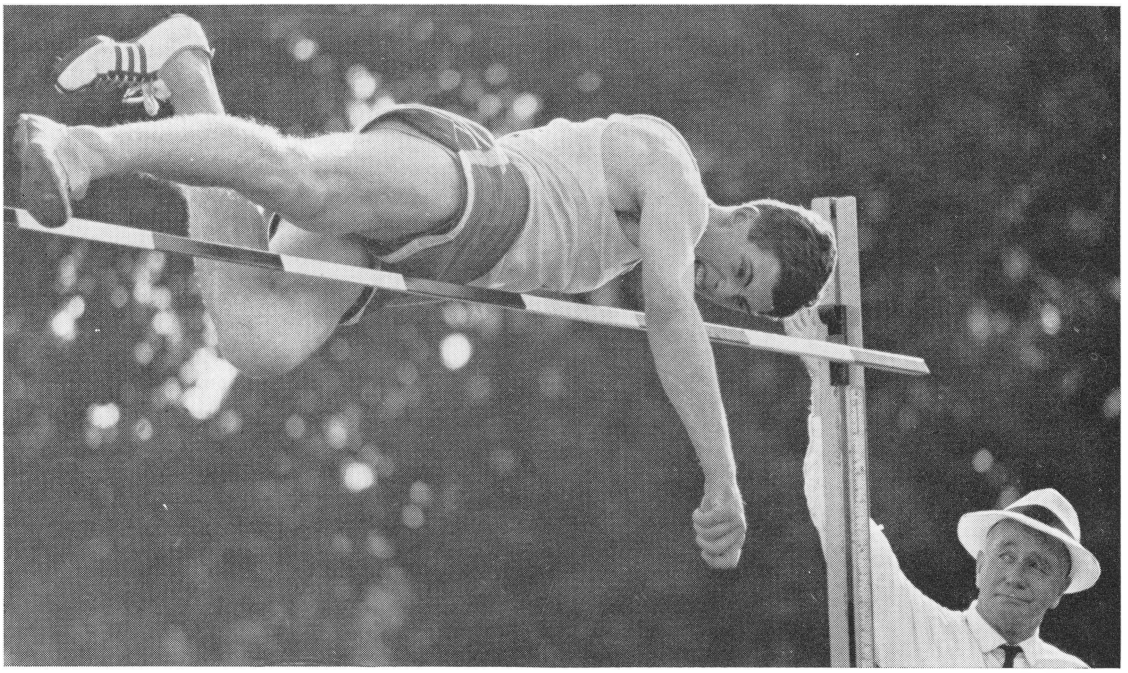
In the 1930s, Australia sprint champion Jimmy Carlton appeared a potential Olympic champion when he ran times of 9·4 and 20·6 seconds (both wind-aided) for 100 and 220 yards (91·4 and 182·2 metres). But Carlton entered the priesthood shortly before the 1932 Olympics in Los Angeles.

John Treloar of Australia won both sprints at the Commonwealth Games in Auckland in 1950 and won another gold medal in the sprint relay. The first Australian to hold an official world sprint record was Hector Hogan. He recorded 9·3 seconds for 100 yards (91·4 metres) in 1954. Hogan could manage only third in the Vancouver Commonwealth Games that year. But he won a bronze medal in the 1956 Olympic 100 metres final in Melbourne. Victorian Peter Norman won a silver medal in the 1968 Mexico City Olympic 200 metres final with a Commonwealth record time of 20 seconds flat.

Women Sprinters from Australia have set an enviable record. Marjorie Jackson won two sprint gold medals at Helsinki in 1952, but missed a third when she dropped the baton while leading the final leg of the sprint relay. Betty Cuthbert won all three gold medals at Melbourne in 1956. Both held world records for 100 and 200 metres events as well as their equivalents in yards. Miss Cuthbert never reached such heights in the short sprints after 1956. But she continued to race until 1964, when she won the inaugural women's 400 metres event at the Tokyo Olympics for her fourth Olympic gold medal.

Other sprint medallists included Shirley Strickland, who won the 100 metres bronze in both 1948 and 1952; Marlene Matthews, who won the 100 and 200 metres bronze in 1956; Marilyn Black, who won the 200 metres bronze in 1964; Raelene Boyle, who won the 200 metres silver in 1968; and Jenny Lamy who won the 200 metres bronze in 1968.

Brian McArdle



Brian McArdle

High Jumping

Throwing the Javelin

Hurdling

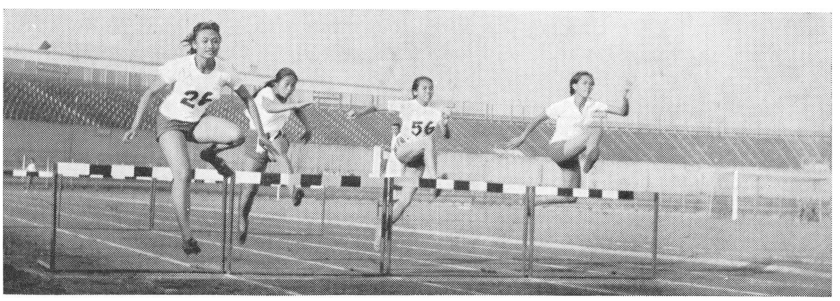


Foto Deppen

Middle Distances. After Flack's victories in 1896, no Australian won an Olympic middle distance event for 64 years. But West Australian Herb Elliott ranks among the greatest milers of all time. He won his first victories in the Commonwealth Games at Cardiff in 1958, winning the 880 yards (805·6 metres) and 1 mile (1·6 kilometres) events. Then, at the Rome Olympics in 1960, he won the 1,500 metres. Elliott also set the then world record of 3 minutes 54·4 seconds. His late world and Olympic record of 3 minutes 35·6 seconds is faster than any Australian has ever done. Before Elliott, the dominant name was that of John Landy, the Geelong Grammar School teacher who became history's second four minute miler when he broke Roger Bannister's world record in 1954, running 3 minutes 58·4 seconds in Finland.

New Zealand's Peter Snell won the Olympic 800 metres in Rome in 1960. In 1962, he broke Elliott's mile record by one tenth of a second as well as establishing world records for 800 metres (1:44·3) and 880 yards (1:45·1). At the Tokyo Olympics in 1964, Snell won the 1,500 metres and successfully defended his 800 metres title.

In Mexico City in 1968, Australian Ralph Doubell equalled Snell's world record and set an Olympic Games record when he won the 800 metres title.

Women Middle Distance Runners have not done as well as men. Over 800 metres, West Australian Dixie Willis was the first and only one from this area to set a world record. She set times of 2 minutes 2·0 seconds for 880 yards (805·6 metres) and 2 minutes 1·2 seconds for 800 metres in 1962. Miss Willis was leading with 80 metres to go in the Rome Olympic final when she stepped on the cement curb and fell. Australian Brenda Jones took the silver medal that year. In 1964, New Zealander Marise Chamberlain won the bronze medal over 800 metres.

Long Distances. Ron Clarke is probably the best known Australian long distance runner. In all, he set a total of 17 world records at distances from 2 miles (3·2 kilometres) all the way to 20,000 metres. But, surprisingly enough, Clarke never won a major international title. His only Olympic medal was a bronze, won in the Tokyo 10,000 metres in 1964.

The first athlete from Australasia to achieve international prominence in long distance running was the

D. W. Evans

The First Games of the New Emerging Forces were held at Jakarta in 1963. Athletes from 48 countries took part.

New Zealander J. W. "Bill" Savidian, who was fourth over both 5,000 and 10,000 metres at the Los Angeles Olympics in 1932. But the greatest achiever in this class, New Zealand's Murray Halberg, won the Olympic 5,000 metres in Rome in 1960 and Commonwealth titles over 3 miles (4·8 kilometres) in both 1958 and 1962. Halberg was also a four minute miler and dominated middle and long distance running for a decade from 1954 to 1964.

The first Australian world record holder over longer distances was Dave Stephens. He ran the 6 miles (9·6 kilometres) in 27 minutes 54 seconds in 1956. Stephens failed in the Olympics mainly due to injury that year.

Walking. A British migrant to New Zealand, Norman Read, won the only gold medal for Olympic walking ever gained by any of the countries in Australasia. Read surprised even himself at the Melbourne Olympics where he unexpectedly won the 50,000 metres event. Australian Noel Freeman won the silver medal over the 20,000 metres walking distance at the Rome Olympics in 1960.

Field Events. Although strong in vertical and horizontal jumping events, Australasian athletes tend to be poor by comparison in the weight-throwing contests. Australian athletes have proved strong at hop, step, and jump (now called *triple jump*) events. A. W. "Mick" Winter won this event at the Paris Games in 1924. Jack Metcalfe set a world record of 16·1 metres (51 feet 9⅜ inches) in 1935 and finished third at the Olympics in Berlin in 1936. George Avery won the silver medal at the London Olympics of 1948. Statistically the best of all was West Australian Phil May, who leapt 16·79 metres (55 feet 10 in.) but could only finish sixth at the Mexico Olympics in 1968.

High-jumper John Winter won the 1948 London Olympic title with a leap of 1·98 metres (6 feet 6 inches). He reached the same height to win the Commonwealth title at Auckland in 1950. Charles "Chilla" Porter took a surprising second in the Melbourne Olympics, clearing 2·09 metres (6 feet 10½ inches). The first 2·1 metres (7 foot) leap came from Colin Ridgway while he was studying in the United States in 1962. Four other Australians have cleared this height or better. They are Lawrie Peckham, Tony Sneazwell, Peter Boyce, and Peter Wright. Peckham, the Commonwealth champion in 1966 and 1970, is so far the best of the lot.

In weight-throwing events, only the New Zealanders Les Mills and Robin Tait have ever exceeded the world class levels of over 18 metres (60 feet) in the shot-put and over 61 metres (200 feet) in the discus.

Among women, New Zealand long-jumper Yvette Williams won the Olympic title in 1952 with a leap of 6·2 metres (20 feet 5⅝ inches).

Organization

The structure of athletics is basically similar in Australia and New Zealand. Each country has a controlling body—the Amateur Athletic Union of Australia and the New Zealand Amateur Athletics Association. Organizations below these national bodies control athletics in the various states and provinces. Below these state and provincial bodies are the various clubs.

The governing body in Indonesia is the All-Indonesia Athletics Association (PASI: Persatuan Athletik Seluruh Indonesia). PASI works in close liaison with the Ministry of Sport. The ministry organizes the annual National Sports Carnival (PON: Pekan Olahraga Nasional). Athletics is an important part of the carnival, which features competition among the provinces.

Malaysia has a federal controlling body and amateur athletics associations in each state. The associations run annual state competitions, and the federal body organizes national championships.

History

Professional running predates the amateur organizations in Australia. In the early 1800s, professional footrunning was probably one of the biggest forms of public entertainment and gambling in Australia. The first athletics club in Australia, the Sydney Athletics Club, was formed in 1872.

The first state amateur association was formed in New South Wales in 1887, followed by Victoria in 1891 and Queensland in 1895. The national Amateur Athletic Union of Australia came into being in 1897. Organizations were formed in Tasmania in 1902 and South Australia in 1905. The Western Australian association operated for the three years from 1905 to 1908. It was revived and reformed in 1928.

The oldest athletics club in New Zealand is the still-flourishing South Canterbury Athletic Club, in Timaru. This club was formed in 1872.

Related Articles. See TRACK AND FIELD in the main volumes. See also the following articles in the Australasian volumes:

Cerutty, Percy
Clarke, Ron
Cuthbert, Betty
Elliott, Herb
Gymnastics
Halberg, Murray
Hogan, Hector
Landy, John
Lydiard, Arthur
Mathews, Marlene
Porritt, Sir Arthur
Snell, Peter
Strickland, Shirley

ATOMIC ENERGY. The amount of atomic research and its application varies greatly among Australia, Indonesia, Malaysia, New Zealand, and Singapore. In Malaysia and Singapore, little atomic research is carried out, and neither country has an atomic reactor. Australia has two and Indonesia has one working reactor. New Zealand has no reactor, but its universities and other establishments carry out much research work. All the countries use radioactive isotopes and other atomic materials in medicine, industry, and other fields.

Uses of Atomic Energy. In all five countries, hospitals use radiocobalt in treating cancer. Radio-isotopes are used as *tracers* in industry and agriculture (see RADIOACTIVITY in the main volumes). Australia and Indonesia make their own radioactive materials with their reactors. The other countries import their materials—mainly from Britain. None of the countries had an atomic power station in the early 1970s. But Australia announced that a 500-megawatt electrical nuclear station would be built in federal territory at Jervis Bay. The output of this station was expected to feed a new steel-making complex in the locality and any excess would go into the New South Wales state grid. The station was scheduled to be completed in 1976. New Zealand considered building a 250-megawatt electrical station at Kaipara Harbour.

Research in Atomic Energy. The Australian Atomic Energy Commission (AAEC) carries out research at Lucas Heights, near Sydney, where it has two reactors. Scientists use the high-power HIFAR reactor for developing working systems appropriate to atomic power stations. The second reactor, MOATA, is less powerful. Other facilities at Lucas Heights include a particle accelerator (see ATOM SMASHER in the main volumes). The Australian National University at Canberra and the University of Melbourne have major nuclear physics installations. Physicists working in Australian universities can use the facilities at Lucas Heights through the Australian Institute of Nuclear Science and Engineering. Scientists of the AAEC collaborate closely with those in similar organizations in Britain, Canada, and the United States. Australia is a member of the International Atomic Energy Agency (IAEA).

Indonesia has received help from specialists of the IAEA in developing its atomic energy programme. Its first reactor, built by Americans at Bandung, has a power output of 250 kilowatts. It came into operation in 1964. A second reactor, supplied by Russia in 1968, had not been erected in 1970.

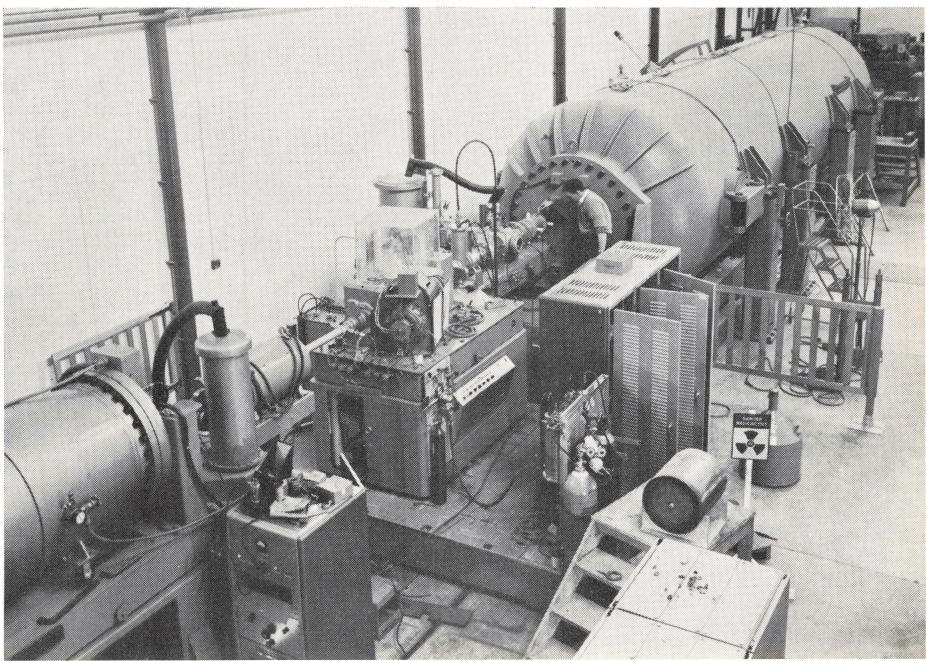
The main atomic energy research laboratory in New Zealand is the Institute for Nuclear Sciences, at Lower Hutt, near Wellington. The institute co-operates closely with university research departments. It has such research instruments as a Van de Graaff generator (see VAN DE GRAAFF GENERATOR in the main volumes). The National Radiation Laboratory in Christchurch is responsible for health and safety regulations, and carries out studies in radioactivity. New Zealand is a member of the IAEA, and maintains close contacts with American, Australian, British, and Canadian atomic energy authorities.

History. Universities in the region carried out little research in nuclear physics or its related fields until after World War II. But, in the 25 years following the war, various universities in Australia built up strong departments to carry out research in experimental and theoretical nuclear physics, nuclear engineering, plasma physics, and the chemistry of radioactive materials. New Zealand started similar programmes at about the same time, but on a smaller scale. In 1953, the Australian government set up the AAEC to carry out research, development, and training work, and to control uranium mining.

Development of atomic research was much slower in Indonesia and Malaysia. But, by the mid-1960s, Indonesia was beginning to build up its university work. At about the same time, the University of Malaya at Kuala Lumpur established work in theoretical nuclear and atomic physics.

See also ATOMIC ENERGY, in the main volumes, and its list of related articles.

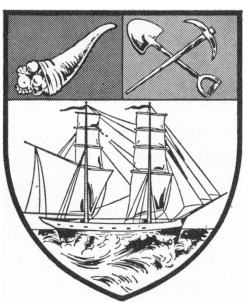
E. W. Titterton



The Particle Accelerator at the Research School of Physical Sciences of the Australian National University in Canberra is an important tool in atomic research.

David Moore

Auckland



Auckland City has Waitemata Harbour on its eastern side. Rangitoto Island, which is an extinct volcano, dominates the landscape.

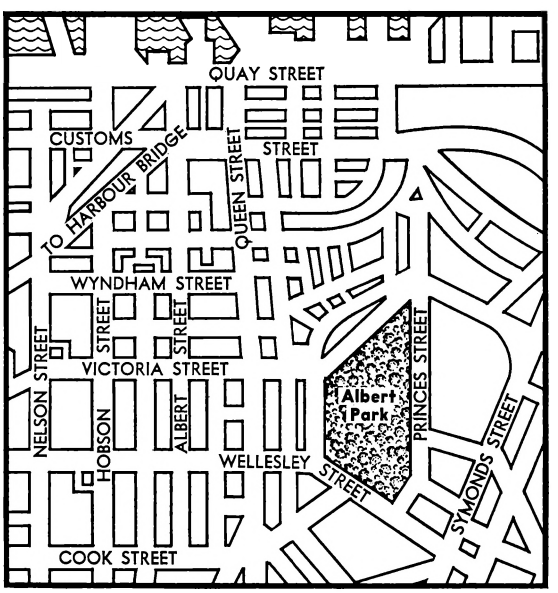
AUCKLAND (pop. 649,746), with its suburbs, is the largest city in New Zealand. The Auckland area has a population more than twice as big as that of Christchurch and its suburbs. But Christchurch has a slightly larger city population than Auckland, which has only 151,580 people living in its central area.

Auckland's warm climate attracts many people from colder parts of New Zealand and from other countries. The city is growing rapidly. According to official estimates, the population is expected to reach a million by 1982.

The city is built on a narrow isthmus of land in the North Island between Waitemata and Manukau harbours. A chain of islands in the Hauraki Gulf shelters Waitemata Harbour, the city's main harbour, on the eastern coast. This harbour is a drowned valley surrounded by rolling land. The city has eight major extinct volcanoes, of which Mount Eden (196 metres or 643 feet) is the highest.

Location, Size, and Description. Auckland lies 680 kilometres (423 miles) by road north of Wellington. The city and its suburbs cover an area of more than 260 square kilometres (100 square miles). The main shopping and business area is in the central city area around Queen Street. This street runs straight down to the wharves. The western suburbs rise up to the fruit-growing and vineyard areas around the Waitakere ranges on the west coast. The North Shore suburbs stretch 19 kilometres (12 miles) from the Devonport peninsula at the approach to Waitemata Harbour. The southern suburbs below the narrowest part of the isthmus are fast becoming the main industrial areas.

Rangitoto Island (260 metres or 854 feet) is the dominant landmark of the city. Waitemata Harbour covers 200 square kilometres (77 square miles) of water. Its name is Maori for *sparkling waters*. Its beach and tidal frontage runs for 317 kilometres



(197 miles). Manukau Harbour, on the western side, has extensive mudflats and sandbanks. Its name is Maori for *place of wading birds*. It is much larger than Waitemata Harbour. It covers 394 square kilometres (152 square miles) of water, and has 386 kilometres (240 miles) of frontage. But only coastal ships can use it, because a sand bar blocks its entrance and only narrow, winding channels lead to Onehunga wharf.

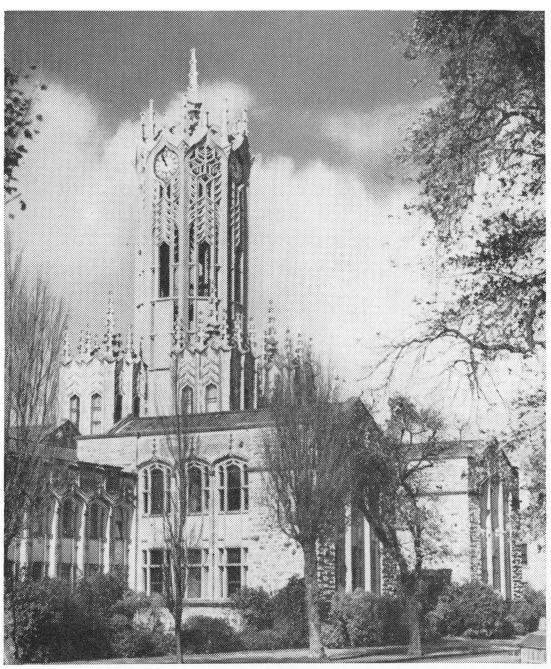
The People. About 80 out of every 100 people living in Auckland were born in New Zealand. Most of the others migrated to Auckland from Commonwealth countries, almost 45,000 from England and more than 10,000 each from Australia and Scotland. Dutch people form the largest group from the mainland of Europe—more than 3,000 of them. More Maoris live in Auckland than in any other city in New Zealand. They number more than 49,000. Most of them have been attracted to the city from country towns because of the number of jobs available there. Auckland has the largest Polynesian population of any city in the world. About 8,000 Pacific islanders live in the city.

Cultural Life. More than 100,000 children attend the 250 schools in Auckland and its suburbs. The best-known state secondary schools include the long-established Auckland and Mount Albert boys' grammar schools, Auckland and Epsom girls' grammar schools, Takapuna Grammar School, and Seddon Memorial Technical College. Well-known private schools include King's and St. Kentigern's colleges for boys, Diocesan High School and St. Cuthbert's College for girls, and the Sacred Heart colleges for boys and girls. More than 9,000 students attend Auckland University. Auckland has five training colleges for teachers.

Auckland's oldest building, Acacia Cottage, now stands in the grounds of Cornwall Park, which surrounds One Tree Hill. It is the original kauri plank cottage that the pioneer Sir John Logan Campbell (1817-1912) built on the shore in 1842.

Auckland War Memorial Museum contains one of the best collections of Maori and Polynesian tools, houses, and canoes in the world. The city council art gallery has an excellent collection of New Zealand and European works of art. Auckland City Council's central library has the best collection of books in the city. The Mercury Theatre is a full-time professional theatrical organization. Theatrical groups also use His Majesty's Theatre and the St. James and other cinemas. Musicians perform in the Auckland town hall and its concert chamber.

Four newspapers—the *New Zealand Herald,* the *Auckland Star,* the *Sunday Times,* and the *Sunday News*—are published in Auckland. The city has six radio stations and one television channel.



Auckland University has more than 9,000 students. The entrance to the main arts building has an impressive tower, built in the Gothic style. Students relax in the grounds.

New Zealand Herald

Auckland Harbour Bridge, opened in 1959, links the city with the North Shore. It is 1,020 metres (3,348 feet) long.

New Zealand Herald

Recreation. Auckland has many sports grounds. People can visit the War Memorial Museum in the Auckland Domain, the Museum of Transport and Technology at Western Springs, and the Auckland Zoo. The city's parks include Albert Park, the Auckland Domain, and Cornwall Park, where visitors can still see the trenches and pits of the old Maori citadel on One Tree Hill.

Beaches near the city include those at Okahu Bay, Mission Bay, Kohimarama, and St. Heliers. The North Shore has a 16 kilometre (10 mile) strip of beaches. Beaches on the western coast, such as those at Piha and Muriwai, have heavy surf.

The Auckland Anniversary Day Regatta is held on the nearest Monday to January 29 each year. It is the largest one-day regatta in the world. More than 1,000 yachts take part.

Industry and Trade. The Auckland Harbour Board, which controls Waitemata and Manukau harbours, has 11 wharves running from Quay Street on the water-front. Auckland waterside workers handle more than 3,759,400 tonnes (3,700,000 tons) of cargo each year. More than 3,100 ships arrive in Waitemata Harbour each year, and more than 210 coastal ships at Onehunga wharf on Manukau Harbour. More than 27,000 passengers arrive at Auckland's passenger terminal each year and 21,000 leave.

Auckland is New Zealand's largest importing port. It handles nearly a third of the goods imported into New Zealand. About 306,000 tonnes (301,000 tons) of motor oil, 301,000 tonnes (296,000 tons) of fertilizer, 311,000 tonnes (306,000 tons) of iron and steel, 138,000 tonnes (136,000 tons) of raw sugar, and 42,000 tonnes (41,000 tons) of Australian wheat are imported annually. Auckland is also the country's largest export-handling port. Auckland exports over 83,000 tonnes (82,000 tons) of butter, 228,000 tonnes (224,000 tons) of other milk products, 141,000 tonnes (139,000 tons) of meat, and 61,000 tonnes (60,000 tons) of wool each year.

More than 2,400 factories employ nearly 61,000 workers. Industries in Auckland include meat works, tanneries, and butter and wool stores. The city has several heavy- and light-engineering plants. Factories make clothing, electrical goods, glassware, plastic products, and shoes. Several plants assemble

Auckland's Beaches attract crowds of holiday-makers. Many people swim in the surf at beaches near Auckland, such as Piha, *below*, on the west coast.
J. E. Farrelly, courtesy *New Zealand Herald*

motorcars. Most of these factories are in the Penrose and Westfield areas, south of the isthmus. Farther south, near Wiri, a steel mill makes steel from scrap metal. Other mills make wire and aluminium products. One plant spins nylon. New Lynn has a large pottery and brick works.

Transport. Trolley and diesel buses take many people to and from work. Diesel passenger trains run to the southern and western suburbs. Ferries run from the city to Devonport on the North Shore. Railway lines and three main motorways lead out of Auckland to link it with other cities in the North Island. Buses for outer suburbs and passenger coaches for other parts of Auckland province leave from the Britomart Place terminal.

The Auckland Harbour Bridge links the city with the North Shore. It was opened in May, 1959. The bridge is 1,020 metres (3,348 feet) long and has a main central span of 244 metres (800 feet). The roadway is 43 metres (142 feet) above the water. Ships can pass under the bridge to the Chelsea Sugar Refinery. The bridge has eight lanes for traffic, but no footpaths. The Auckland Harbour Bridge Authority originally built a four-lane bridge, then added extra lanes on each side of the existing structure. The bridge cost about £6,800,000, and the additions cost another $NZ 11 million (£5,500,000).

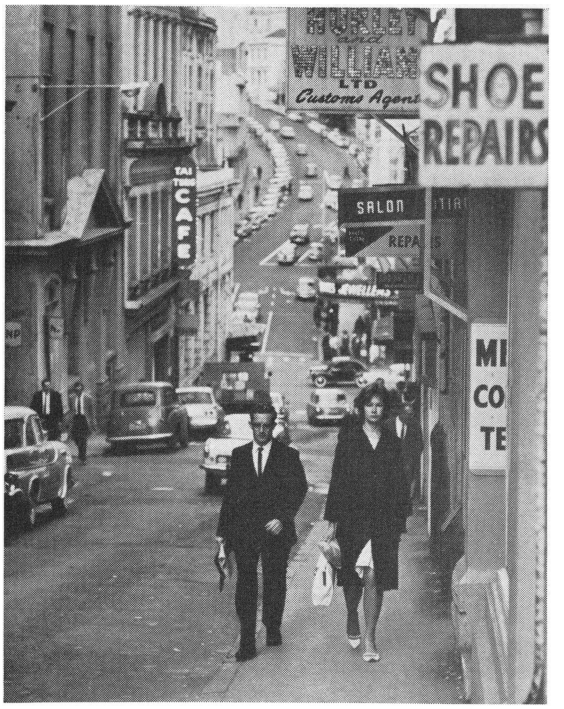
The airport at Mangere can take the largest jet aeroplanes. The Royal New Zealand Air Force uses Whenuapai airport. Flying clubs and aerial top-dressing planes use Ardmore aerodrome.

Public Services. The Auckland and Waitemata electric power boards buy electricity from the government electricity department and supply it to buildings, houses, and factories. The Auckland Regional Authority controls the water supply and the sewerage system of the city. Six dams in the Waitakere ranges to the west and the Hunua ranges to the south store water to supply the city.

Government. Auckland City Council, Takapuna City Council, Manukau City Council, and 19 smaller borough councils collect rates from all landowners and provide most local services. Adults and ratepayers elect people to serve on these councils and boards every three years. The Auckland Regional Authority has power over 5,180 square kilometres (2,000 square miles). It looks after water supplies, public buses, drainage, the airport, civil defence, and town planning. Ratepayers pay for these services. The Auckland Harbour Board levies charges on ships and cargoes. The Auckland Harbour Bridge Authority collects tolls from the people who use the bridge.

History. Archaeologists have found evidence that Maoris lived in the Auckland area before A.D. 1300. But the first large tribes of Maoris probably settled there during the 1300s. Various tribes fought for possession of the rich farming land and the harbour fishing grounds. They built forts with trenches, pits, and stockades on the hills. About 1750, the Ngatiwhatua tribe gained complete control of the land. But fierce fighting continued until 1827.

Historians do not know which European first landed on the present site of Auckland. In November, 1769, the British explorer James Cook sailed into the Hauraki Gulf. He passed to the east of Waiheke Island. But he did not see the entrance to Waitemata Harbour or the present site of the city. Whalers looking for kauri spars for their ships probably visited the harbour. But the missionary Samuel Marsden made the first recorded entry into the harbour, in 1820.



David Moore

The Queen Street Area in the centre of the city contains shops and offices. Streets that meet at or cross Queen Street include Swanson, *foreground,* and Shortland, *background.*

In September, 1840, the lieutenant-governor of New Zealand, William Hobson, decided to shift his capital from Russell to the area around Waitemata Harbour. He decided to name the area after Lord Auckland, the First Lord of the Admiralty.

On July 29, 1841, a group of Maori chiefs, including Apihai te Kawau, Tinana, and Reweti Tamaki, sold about 1,214 hectares (3,000 acres) to the government. The price was £50, 50 blankets, 20 trousers, 20 shirts, 10 waistcoats, 10 caps, 4 casks of tobacco, 1 box of pipes, 91 metres (100 yards) of gown pieces, 10 iron pots, 1 bag of sugar, 1 bag of flour, and 20 hatchets.

The government sold the first land to settlers in April, 1841, for £21,299. The first two ships of migrants for Auckland—the *Duchess of Argyle* and the *Jane Gifford*—arrived from Greenock, in Scotland, on Oct. 9, 1842, carrying 535 settlers.

Thriving trade and a gold rush at Coromandel in 1852 caused the city to grow rapidly. The first trams started running in 1902, and the town hall was opened in 1911.

Related Articles in the Australasian volumes include:
Auckland (province)
Campbell, Sir John
Logan
History of New Zealand
Hobson, William
Marsden, Samuel

New Zealand National Publicity

Huka Falls, just north of Lake Taupo, are among the chief tourist attractions of Auckland province. They are part of a long stretch of rapids on the Waikato River.

AUCKLAND, a province of New Zealand, occupies the northern part of the North Island. It covers more than three-fifths of the island and is the country's most heavily populated and heavily industrialized province.

More than two out of every five people in New Zealand live in Auckland province. Most of the country's manufacturing industries are in the province. These industries include New Zealand's developing iron and steel industry, its pulp and paper industry, and its only oil refinery. The iron ore comes from vast deposits of ironsands along the western coast. The timber comes from extensive plantations of pines in the central part of the North Island. The oil for refining is imported.

Many of the land features in Auckland province provide some of New Zealand's finest scenery. New Zealand's longest river, the Waikato, flows out of Lake Taupo—the largest lake—in the south.

The Land

Location and Size. Auckland province occupies the northern peninsula of the North Island and extends a little farther south than the southern shore of Lake Taupo. The province has an area of 65,837 square kilometres (25,420 square miles.) Its greatest distance from north-west to south-east is 676 kilometres (420 miles). From west to east it is nearly 322 kilometres (200 miles).

Land Features. The Northland region of the province covers a long peninsula that extends more than 322 kilometres (200 miles) north-west from the main mass of the North Island. Geologists regard the area as geologically well settled—that is, it has few geological faults (breaks in the structure of the rocks underlying the area).

The Northland peninsula is connected with the rest of Auckland province by a narrow strip of land known as the Tamaki Isthmus, which lies between Waitemata Harbour, on the eastern coast, and Manukau Harbour, on the western coast. The city of Auckland lies on the isthmus. In the east, the Coromandel Peninsula extends northwards for about 97 kilometres (60 miles). It forms the eastern shore of the Firth of Thames, a deep sea inlet.

South of the city of Auckland, the Waikato Valley and Thames Valley lowlands form the central-western part of the province. Farther south, near the Taranaki border, lie the Rangitoto Range and the Hauhungaroa Range. The central volcanic plateau includes Lake Taupo, near the Wellington border, and the Rotorua area, north of it. The plateau is made up of layer upon layer of pumice deposited during a series of volcanic eruptions thousands of years ago. Experts estimate that eruptions in the Taupo area occurred between 7000 B.C. and A.D. 250. Some of the volcanoes may still be active. Mt. Tarawera last erupted in 1886, killing many people.

The Bay of Plenty lowland forms much of the central part of the province. It consists of a plain built of soil deposited by rivers flowing northwards into the Bay of Plenty from the central volcanic plateau. To the east, the East Coast region includes the East Cape and the Poverty Bay areas. The Raukumara Range and the Huiarau Range form a mountain chain that extends south-west across the province from the East Cape.

Rivers and Lakes. The province's chief river, the Waikato, is 354 kilometres (220 miles) long. Eight power stations generate a total of nearly 900,000 kilowatts of electricity from its waters. The Waikato flows west from Lake Taupo into the Tasman Sea.

FACTS IN BRIEF

Largest Towns: Auckland, Hamilton, Tauranga, Rotorua, Whangarei, Gisborne.

Area: 65,830 square kilometres (25,417 square miles).

Population: 1,264,232.

Chief Products: Butter, cheese, coal, fruit, ironsands, meat pulp and paper, timber.

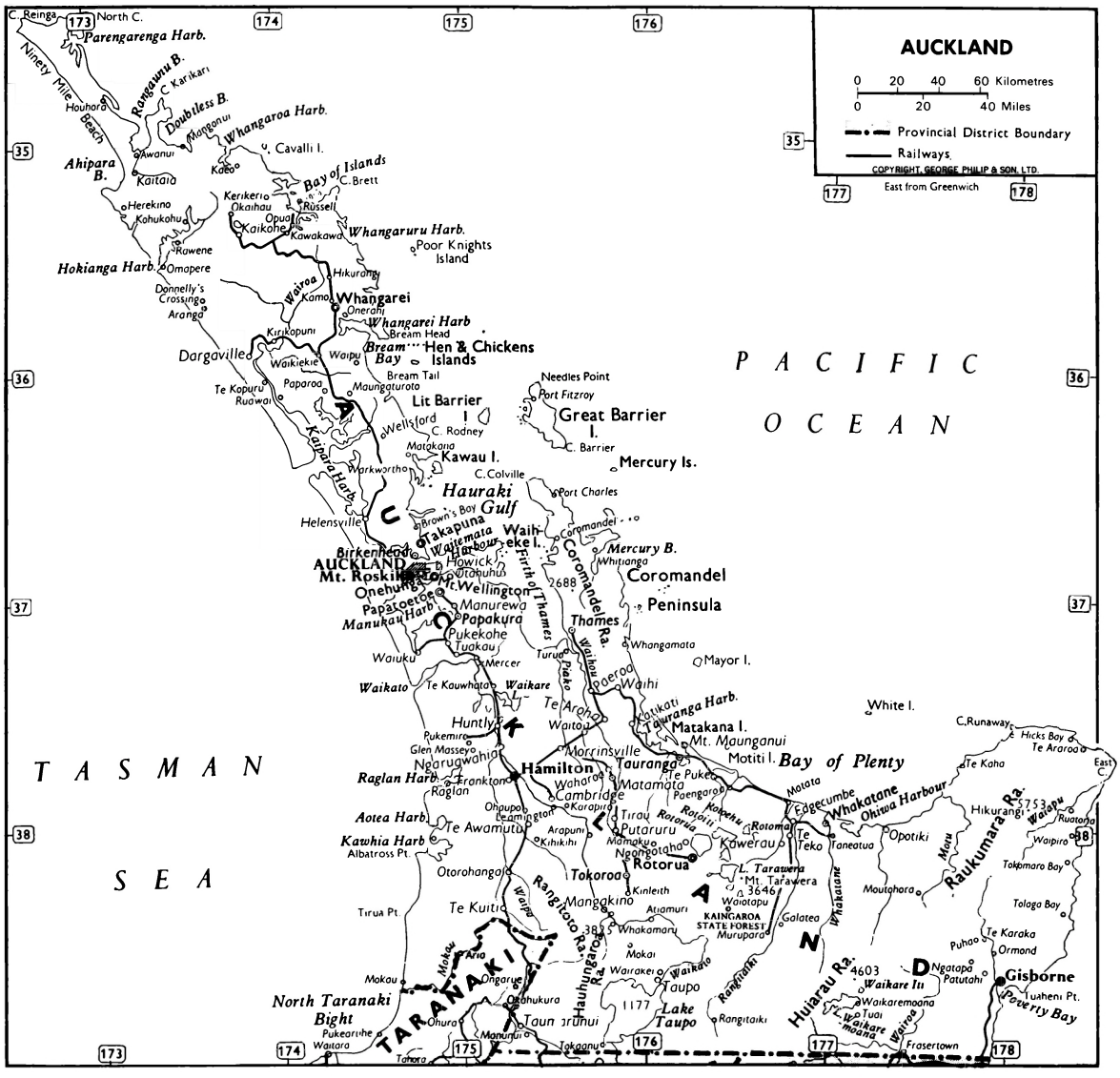
The only other large river in the central part of the province, the Rangitaiki, flows from a catchment area east of Lake Taupo into the Bay of Plenty. Other rivers flowing north and east include the Waiapu, in the East Coast region, which flows into the Pacific near the East Cape, and the Waihou, which flows into the Firth of Thames. The only important river in the north is the Northern Wairoa, which flows into Kaipara Harbour.

In the mid-1970s, the Tongariro River and other catchment areas were harnessed to generate a total of nearly 300,000 kilowatts of electricity. Lake Taupo covers 616·4 square kilometres (238 square miles). It is 40 kilometres (25 miles) long and 27 kilometres (17 miles) wide. Rotorua is the centre of the North Island lakes district. In this area are Lakes Rotorua, Rotoiti, Rotoehu, Rotoma, Okataina, Tarawera, Rotomahana, and Rerewhakaaitu.

Climate throughout the province is mild. But there is much variation in the rainfall for various regions.

New Zealand National Publicity

Lake Taupo is one of Auckland province's chief tourist areas. This lake is noted for its trout-fishing.



The New Zealand Herald

Forestry is one of the most important rural industries in Auckland, a province that has many large forests of pines.

For example, the Waihi plains, at the southern end of the Coromandel Peninsula, have an average annual rainfall of more than 2,159 millimetres (85 inches). But Hamilton, the chief centre of the Waikato lowlands, has an average annual rainfall of only 1,168 millimetres (46 inches). The driest part of the province is the Poverty Bay area, which has an average rainfall of only 965 millimetres (38 inches). Temperatures in Auckland province tend to be higher in the Northland region than in the other regions. The city of Auckland has an average annual rainfall of nearly 1,270 millimetres (50 inches). The city's average temperature for July is 11° C (51° F) and the average temperature for February is 19° C (67° F).

The People and Their Work

In the Towns. Auckland is the largest city in the province (see AUCKLAND in this volume). The Waikato Valley, south of Auckland, includes Hamilton, second largest city in the province and fifth largest in New Zealand. Auckland is New Zealand's chief manufacturing centre. It has more than 3,000 factories and 80,000 factory workers. They work in such plants as New Zealand's only sugar refinery, several freezing works and tanneries, two breweries, and five motor-vehicle assembly plants. Other factories produce clothing, footwear, glassware, plastics, electrical goods, and processed foods. Many of the people of Auckland are waterside workers and ship-repairers. Auckland's ship-repairing area includes the naval dockyard at Devonport.

New Zealand's developing iron and steel industry is located near Waiuku, close to the western coast. The industry is based on ironsand deposits lying along the beaches of the central part of the western coast.

Hamilton is the chief city of the Waikato district, a prosperous dairy-farming area. Factories in Hamilton include a brewery, a gasworks, brick works, and plants that produce agricultural machinery, light aircraft, and processed foods.

Whangarei, in the far north, is the second largest port in the province and the third port in New Zealand, after Auckland and Wellington. The country's only oil refinery and one of its glass-works are near Whangarei. The refinery, at Marsden Point, near the entrance to Whangarei Harbour, produces enough petroleum products to meet most of the country's needs. One of the country's largest cement plants is also located on the shores of the harbour.

Four of New Zealand's six pulp and paper mills are in Auckland province. They produce a total of more than 560,000 tonnes of wood-pulp a year and export pulp and paper worth a total of nearly $NZ 30 million. The chief mills are at Kawerau, near Whakatane, and at Kinleith, near Tokoroa, in the southern Waikato district. Mt. Maunganui, on the shores of the Bay of Plenty, is New Zealand's chief port for exporting timber, pulp, and paper. Most of this timber is shipped to Australia and Japan.

Rotorua is the hub of New Zealand's largest hot-springs district and is the country's chief tourist city. Many people work in the tourist industry. Many of the people of Rotorua are Maoris.

Gisborne, on the shores of Poverty Bay, is the province's second-smallest city. Many of the people of Gisborne work in factories that include a freezing works, gasworks, brewery, and food-processing plants.

Coal-mining is an important industry in the province. Coal from the open-cast mines at Maramarua, in the northern part of the Waikato district, is used as fuel for the electricity generating station at Mercer, between Huntly and Auckland.

In the Country. Many of the people of Auckland province are dairy farmers, sheep farmers, fruit-growers, and market gardeners.

The Waikato district is the province's chief dairying area. Farmers in this district contribute about two-fifths of New Zealand's total output of dairy products. Pig farming is another important industry in the Waikato district, which produces nearly half of New Zealand's total output of bacon, ham, and pork. The other chief dairy-farming areas include the southern part of the Northland region, where there are more than 7,000 dairy farms, and the lowlands of the Bay of Plenty district.

The East Coast region and parts of the Waikato district are the chief sheep-farming areas. The Poverty Bay district, on the East Coast, has more sheep than any other part of the province. Kerikeri, in the far north of Auckland province, and Tauranga and Te Puke, in the Bay of Plenty district are New Zealand's most important areas for growing citrus fruits. Grapes for wine-making are grown at Henderson, near Auckland. Farmers in the Gisborne area grow crops of apples, apricots, plums, and pears, as well as grapes for wine-making.

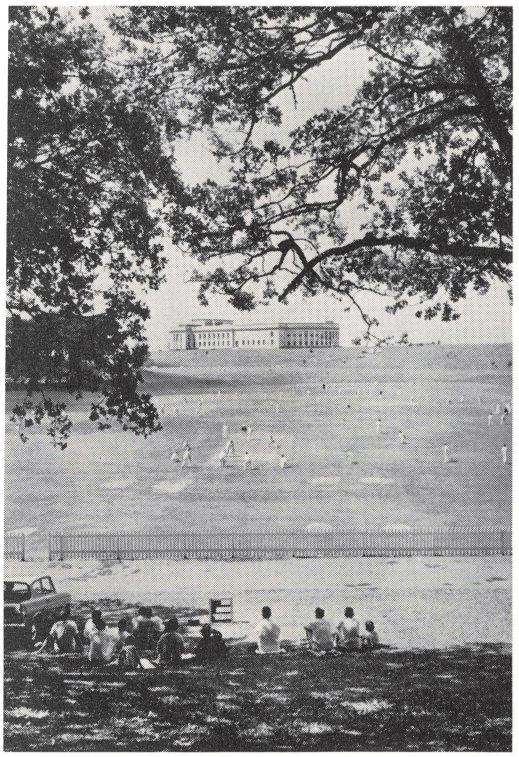
Forestry is one of the most important rural indus-

tries in the province. The Kaingaroa State Forest is a government-run pine tree plantation that covers 632 square kilometres (244 square miles) of pumice-stone country near Murupara, north-east of Lake Taupo. This forest is one of the world's largest plantations of pine trees. The many government-run and privately owned forests in the Rotorua-Taupo-Whakatane area cover a total of nearly 2,600 square kilometres (1,000 square miles). Much of the timber from these forests is used in making pulp and paper.

Transport and Communications

Auckland city is New Zealand's chief terminal for overseas shipping and airline services. Auckland is the main port for cruise liners and most overseas passenger liners calling regularly at New Zealand ports. American passenger liners call at Auckland and Opua. All but two of the international airlines operating to New Zealand use Auckland as their only New Zealand terminal. Both shipping and airline services link Auckland with Australia, Singapore, Hong Kong, the islands of the Pacific, and the United States.

Route one, the chief highway linking Auckland with Wellington, in the south, and with Awanui, in the far north, is the chief north-south road. The western coast highway links the province with Taranaki (see TARANAKI in the other Australasian volume). Two highway routes link Auckland city with the East Coast. One route is by way of Tauranga and Whakatane to Gisborne. The other is by way of Rotorua and Murupara to Wairoa. The Auckland-Wellington Main Trunk railway and the Auckland-Kaikohe railway link the northern and southern extremes of the province. Branch lines link Rotorua, Tauranga, Thames, and some smaller centres to the Main Trunk line. Airline services link Auckland with Kaitaia, Kaikohe, Paihia, Whangarei, Hamilton, Taur-



Brian Brake, Magnum

The Domain, a large sports ground near the centre of Auckland city, is one of Auckland province's best-known recreation areas.

Cape Reinga, a picturesque part of New Zealand, lies about 20 miles south-west of the most northerly tip of the North Island.

Alan Foley

Waitomo Caves, south-west of Rotorua, are a well-known tourist attraction. One of the caves is lit by thousands of glow-worms.

anga, Whakatane, Rotorua, Taupo, and Gisborne, in addition to centres outside Auckland province.

Education

New Zealand's first school opened in Auckland province. In 1816, the missionary Samuel Marsden established a school near the shores of Rangihoua Bay in the Bay of Islands. It had 80 students, both Maori and European.

Auckland province has more than 750 government-run primary schools. The Roman Catholic Church runs more than 100 primary schools and other Churches operate about 30. Secondary schools in the province include about 90 government-run schools. Most of the independent schools are run by the Roman Catholic Church.

There are more special schools for Maori children in Auckland province than in the other provinces, because most Maoris live in the northern part of New Zealand. The East Coast and Northland regions are New Zealand's chief areas for Maori schools. Most of these schools are run by the government but many others are run by Church missions. At Tuhikaramea, near Hamilton, the Mormons run a large mission school chiefly for Maori children.

Auckland province has more than 10 technical colleges that provide courses in specialized subjects. There are four training colleges for teachers—three in Auckland and one in Hamilton. The province has two universities. More than 10,000 students attend the University of Auckland, established in 1882. This university has New Zealand's only faculty of architecture. The University of Waikato, founded in 1960 as a branch of the University of Auckland, became fully independent in 1964.

Things to See and Do

Many of New Zealand's chief tourist resorts are in Auckland province. The best-known and most popular is Rotorua, the centre of the hot-springs area. The area has many geysers, hot springs, pools of boiling mud, and steaming cliffs. The largest geyser, Pohutu, spouts boiling water as high as 100 feet into the air. Many people suffering from rheumatic complaints visit Rotorua's hot sulphur springs, including the Ward Baths.

Three limestone caves lie at Waitomo, south-west of Rotorua. One of the Waitomo Caves is lit by thousands of glow-worms. A sightseeing boat sails through the cave on an underground river.

Lake Taupo is New Zealand's most famous trout-fishing and water-sports area. Each year, anglers take about 500 tonnes of rainbow trout from Lake Taupo and the streams flowing into it. The Tongariro River, which flows into the southern part of the lake, is the chief trout fishing area. Eight kilometres (5 miles) north of Taupo is the geothermal power project at Wairakei. See ELECTRICAL POWER in this volume. Other famous sights near Wairakei include the Aratiatia Rapids and Huka Falls, both on the Waikato River.

Coromandel, Thames, and Waihi, three towns on the Coromandel Peninsula that had a prosperous gold-mining industry in the late 1800s, are of interest to the tourist for their picturesque old tavern buildings, and their mining museums.

Whangaroa, the Bay of Islands, and Tutukaka, near Whangarei, are bases for big-game fishing on the north-east coast of the province. The coastal waters near the Bay of Islands abound with swordfish, mako sharks, and kingfish. These fish have made big-game fishing one of New Zealand's chief attractions for tourists from other countries.

History

Experts believe that Maoris lived in the Northland area before 1300. About 1750, after fighting other tribes, the Ngati-whatua tribe gained control of much of the land in Northland. Soon afterwards, in 1769, James Cook sailed his ship *Endeavour* into the Bay of Plenty. He named the bay when the Maoris agreed to supply food and water for his crew. A French explorer, Jean François de Surville, briefly visited Northland in December, 1769, when he sailed his ship *Saint Jean Baptiste* into Doubtless Bay. Marion du Fresne, another Frenchman, visited the Bay of Islands in 1812.

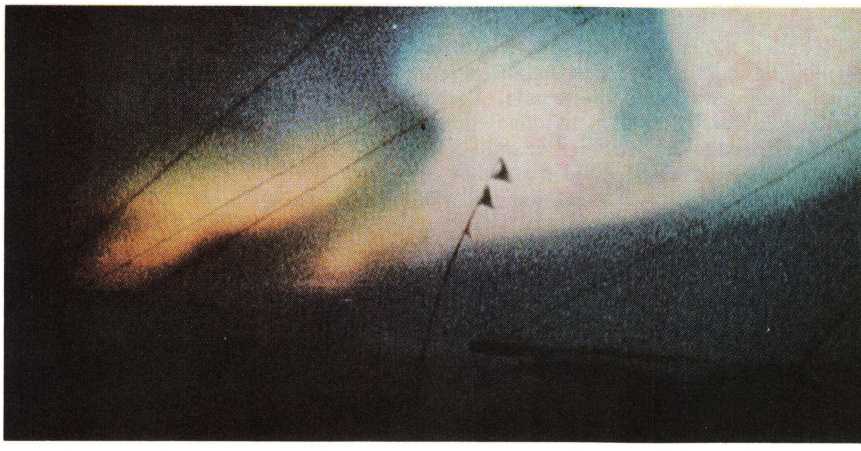
In the early 1800s, sealers and whalers established a settlement at Kororareka (now Russell), in the Bay of Islands. These lawless men bargained dishonestly with the Maoris. In 1814, the missionary Samuel Marsden reached Kororareka to join a party of missionaries he had sent earlier the same year from Australia. In 1823, another missionary, Henry Williams, took over the mission at Kororareka. Later, he established a mission on the shores of the Bay of Plenty. Another mission was established on the shores of Hokianga Harbour, on the far north-western coast. See MARSDEN, SAMUEL, and WILLIAMS (Henry) in the other Australasian volume.

In 1840, William Hobson, lieutenant-governor of New Zealand, decided to shift the country's capital from Russell to Auckland. In 1852, when Britain granted New Zealand responsible government, Auckland became the official capital. New Zealand's first parliament sat in Auckland in 1854. In 1865, the government moved the capital to Wellington. In the years since this move, the province of Auckland has attracted more people and more new industries within its boundaries than any other part of New Zealand.

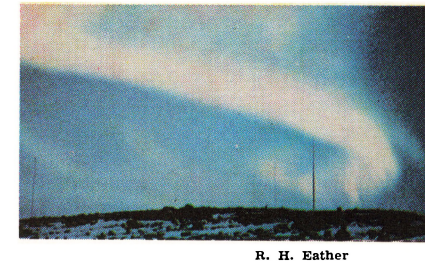
Related Articles in the Australasian volumes of WORLD BOOK include:

Auckland (city)
Bay of Islands
Cape Maria van Diemen
Coromandel Peninsula
East Cape
East Coast
Gisborne
Government of New Zealand
Hamilton
History of New Zealand
Hobson, William
Huka Falls
Kaingaroa
Lake Rotoiti
Lake Taupo
Lake Waikaremoana
Manukau Harbour
Mount Maunganui
Ninety Mile Beach
Rotorua
Russell
Tauranga
Waikato (district)
Waitemata Harbour
Waitomo Caves
Whangarei
Young Nick's Head

AUCKLAND ISLANDS. See AUCKLAND ISLANDS in the main volumes; SUBANTARCTIC ISLANDS in other Australasian volume.



The Aurora Australis can be seen in its fullest brilliance only over Antarctica. The huge shocks of light appear like fantastic images—as diffused patches fading back into the universe or as sweeping belts hurtling earthwards.



R. H. Eather

AUNT DAISY (1880-1963, a radio personality, first became famous in New Zealand during the 1930s for her morning radio programme dealing with subjects of interest to women. Her real name was DAISY TAYLOR BASHAM. She was born in London, where she spent most of her childhood. After her family settled in New Zealand, she was educated at the New Plymouth Girls' High School. She published several books, including eight cookery books.

AURORA AUSTRALIS, also called *southern lights,* occurs as arcs or bands of brilliant light in the sky over the Antarctic. The light usually appears green, crimson, yellow, or white. People as far away as the southern parts of Australia and New Zealand can often see the aurora. The aurora australis, like the aurora borealis—the *northern lights*—is caused by the interaction of *ions* (charged particles) emitted by the Sun on the Earth's magnetic field. The explorer James Cook first sighted the aurora australis in 1773.

See also AURORA BOREALIS in the main volumes.

AUSTRAL, FLORENCE (1892-1968), an Australian dramatic soprano, became internationally famous both as a grand opera singer and as a concert artist. She studied at the Melbourne University Conservatorium and at the London School of Opera. Later, she studied Italian opera in New York City. In 1922, she made her début at the Royal Opera House, Covent Garden, in London. She was known particularly for her portrayal of Brünnhilde in *Der Ring des Nibelungen* by Richard Wagner. She was also principal dramatic soprano in many British music festivals. Florence Austral was born in Melbourne. She married the celebrated flautist John Amadio in 1925 (see AMADIO, JOHN, in this volume).

AUSTRALASIA is a term commonly used to describe the region that contains Australia and New Zealand. But the term has no single definition. For example, some geographers and political experts tend to define Australasia as including only Australia and New Zealand. Naturalists tend to define it as the area south and east of Wallace's line, an imaginary line extending southwards from the Philippines to separate Sulawesi from Borneo and Bali from Lombok. Animals and plants on one side of the line differ markedly from those on the other side (see WALLACE'S LINE in the main volumes).

WORLD BOOK uses Australasia geographically to define the area of the world extending eastwards from the Malay Peninsula to Easter Island and southwards from the Trust Territory of the Pacific Islands to the Australian and New Zealand Antarctic territories. Politically, WORLD BOOK uses the term to include 9 countries—Australia, the Cook Islands, Indonesia, Malaysia, Nauru, New Zealand, Singapore, Tonga, and Western Samoa—and the major Pacific islands groups, which are colonies, dependencies, or trust territories of countries. WORLD BOOK also describes the peoples and their ways of life, animals, and plants within this whole Australasian area.

AUSTRALIA

AUSTRALIA is geographically the island continent that lies between the Indian and Pacific oceans. Politically, it is the *Commonwealth of Australia,* and consists of six states, two mainland territories, and eight external territories. The states of Australia are New South Wales, Queensland, South Australia, Tasmania, Victoria, and Western Australia. The mainland territories are the Australian Capital Territory and the Northern Territory. Australia's external territories are Ashmore and Cartier Islands, the Australian Antarctic Territory, Christmas Island, Cocos Islands, Heard and McDonald Islands, Norfolk Island, and Papua New Guinea.

The main volumes of WORLD BOOK have hundreds of articles that contain references to Australia. Many articles in the two Australasian volumes relate specifically to Australia. This article is designed to act as a guide. It lists the chief articles in the two Australasian volumes and certain articles from the main volumes. Unless the article title has a reference to the main volumes, it appears in one of the Australasian volumes.

The Land

The physical features and climate of Australia are described in the AUSTRALIA article in the main volumes. For more detailed information, see DROUGHTS; EROSION; FLOODS; MONSOONS; and the articles on the various states and territories in the Australasian volumes.

Most of the plants and animals found in Australia have separate articles in the main volumes. For information on how these plants and animals form part of a world-wide pattern, see AMPHIBIAN; ANIMAL; BIRD; FISH; FLOWER; MARSUPIAL; and TREE in the main volumes. See also the following articles in the Australasian volumes:

AMPHIBIANS
BIRDS
FERNS
FISH
FLOWERS
FUNGI
INSECTS
LIANAS
MAMMALS
MARSUPIALS
MONOTREMES
REPTILES
SANCTUARIES
SHARKS
SPIDERS
TREES
ZOOS

People and Ways of Life

The earliest inhabitants of Australia were people who came from southern Asia probably about 20,000 years ago. See ABORIGINES; AUSTRALOIDS; TASMANIAN ABORIGINES.

During the late 1700s and early 1800s, the British colonized Australia because they needed a place to send their convicts. Soon, ex-convicts and free settlers made up most of the population. See FREE SETTLERS; SQUATTERS; TRANSPORTATION.

During the 1900s, the Australian government began to assist migration to Australia from the countries of Europe. Today more than 2 million of the 13·5 million people living in Australia were born in European countries. See IMMIGRATION AND EMIGRATION; WHITE AUSTRALIA POLICY.

Australia is taking its place as one of the most prosperous and developed countries in the world. See COLOMBO PLAN; COMMONWEALTH OF NATIONS; SOUTHEAST ASIA TREATY ORGANIZATION; and UNITED NATIONS in the main volumes. See also the following articles in the Australasian volumes.

EX-SERVICES ORGANIZATIONS
HEALTH SERVICES
INTERNATIONAL COOPERATION
RELIGION IN AUSTRALIA
SOCIAL SERVICES
VOLUNTARY SERVICES
YOUTH SERVICES

Government and Politics. Australia has a long tradition of stable government. Its political institutions are modelled on the British method of government. But Australia's method of government differs from that of Britain in one important aspect—under the federal system, each state has its own government and law.

The everyday running of almost the whole of Australia lies in the hands of local government and public service bodies. They maintain essential services such as electricity and water supplies. Each state is divided into local government areas of cities, towns, and country districts (see the *Government* sections of the state articles).

The country as a whole has federal laws and federal courts. For general information on the political institutions of Australia, see GOVERNMENT; PARLIAMENT; and POLITICAL PARTY in the main volumes.

The Australasian volumes contain many articles dealing with political leaders and specific aspects of government and politics in Australia. See also:

ARBITRATION AND CONCILIATION
AUSTRALIAN LOAN COUNCIL
FEDERATION
GOVERNMENT OF AUSTRALIA
GOVERNORS AND GOVERNORS-GENERAL
POLITICAL PARTIES OF AUSTRALIA
PREMIERS' CONFERENCES
PRIVY COUNCIL
TRADE UNIONS

Defence and Law and Order. The national defence of Australia and its military part in various treaties is carried out by the armed services (see ARMED SERVICES OF AUSTRALIA). See also AIR FORCE; ARMY; and NAVY in the main volumes.

Police forces and courts administer law and order throughout Australia. For information concerning the maintenance of law and order in each state, see the *Government* sections of the state articles, and LEGAL SYSTEM OF AUSTRALIA. See also COURT; LAW; and POLICE in the main volumes.

Education. Australian children may attend government or private schools. They may study at general high schools and prepare for university, or specialize at agricultural, technical, or professional training schools. Adults may further their education through adult education organizations. In addition, universities throughout Australia provide higher education. Authorities make special provisions for children living in remote areas, handicapped children, and some Aboriginal children. Children at school receive free health services. For further information about education in Australia, see:

ADULT EDUCATION
CORRESPONDENCE SCHOOLS
EDUCATION IN AUSTRALIA
LIBRARIES
SCHOOL OF THE AIR
UNIVERSITIES
WYNDHAM SCHEME

See also EDUCATION; LIBRARY; SCHOOL;

Australia: Physical Features and Discovery

Sea Exploration:

- Jansz, 1606
- Thijsen, 1627
- Tasman, 1642–1643, 1644
- Dampier, 1699
- Cook, 1770
- Bass and Flinders, 1798
- Flinders, 1802–1803

Land Exploration:

- Blaxland, Lawson, and Wentworth, 1813
- Oxley, 1817, 1818
- Hovell and Hume, 1824–1825
- Cunningham, 1827
- Hume and Sturt, 1828–1829
- Sturt,1829–1830,1844–1846
- Mitchell, 1836, 1845–1846
- Eyre, 1839, 1840–1841
- Leichhardt, 1844–1845
- Stuart, 1858, 1860–1862
- Burke and Wills, 1860–1861
- Forrest and Forrest, 1869, 1874, 1879

Seasonal river or lake

0 250 500 750 Kilometres
0 250 500 Miles

WORLD BOOK map

1788-1850: Opening the Land

Area settled by 1850

Road

Dates listed below and dates shown on the map are founding dates. All settlements appear with their present names.

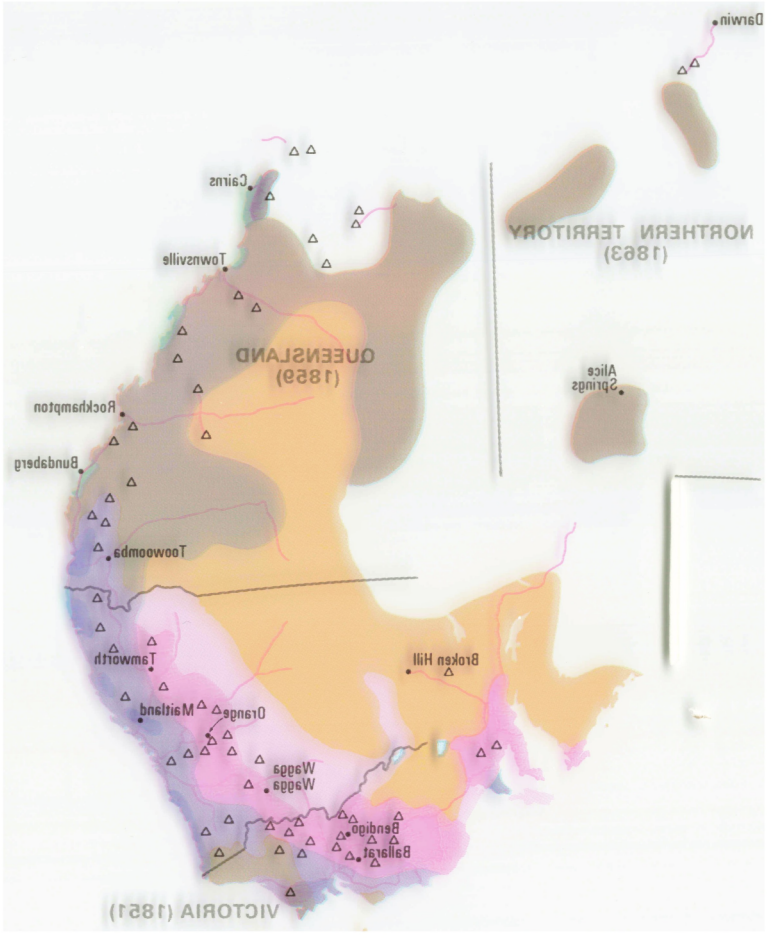
Early settlements:

Sydney	1788
Newcastle	1801
Hobart	1804
Launceston	1805
Port Macquarie	1821
Brisbane	1824
Albany	1826
Ipswich	1827
Perth	1829
Wollongong	1834
Geelong	1835
Melbourne	1835
Adelaide	1836

0 250 500 750 Kilometres

0 250 500 Miles

WORLD BOOK map



1851-1900: Gold Discoveries and Agricultural Development

- Sheep zone
- Wheat-sheep zone
- Beef cattle zone
- Dairying zone
- Sugar cane zone
- Irrigated land
- Area not used for agriculture
- Rail line
- Road
- Gold rush site
- City or town

Dates given for states and territories are founding dates.

0 250 500 750 Kilometres

0 250 500 Miles

1851-1900: Gold Discoveries and Agricultural Development

- Sheep zone
- Wheat-sheep zone
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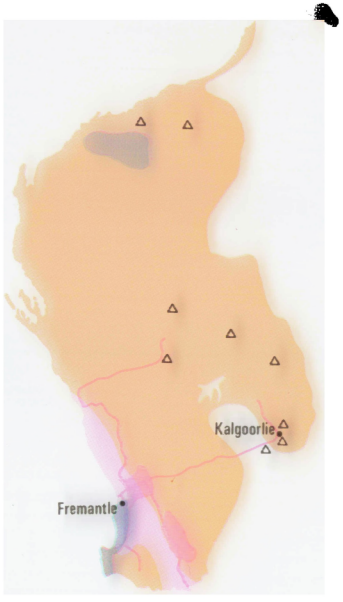
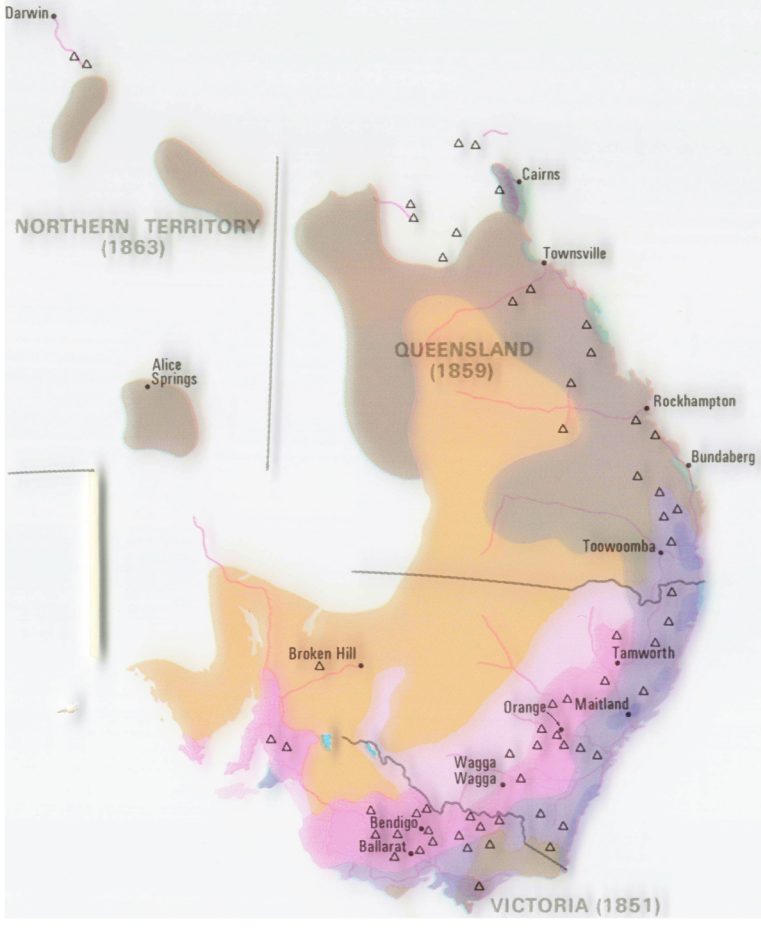
- City or town

Dates given for states and territories are founding dates.

0 250 500 750 Kilometres
0 250 500 Miles





1901-1930: Era of Expansion

- Sheep zone
- Wheat-sheep zone
- Beef cattle zone
- Dairying zone
- Sugar cane farming zone
- Irrigated land
- Area not used for agriculture
- Rail line
- City or town

0 250 500 750 Kilometers

0 250 500 Miles

1901-1930: Era of Expansion

- Sheep zone
- Wheat-sheep zone
- Beef cattle zone
- Dairying zone
- Sugar cane farming zone
- Irrigated land
- Area not used for agriculture
- Rail line
- City or town

0 250 500 750 Kilometres
0 250 500 Miles

Australia Today

- Sheep zone
- Wheat-sheep zone
- Beef cattle zone
- Dairying zone
- Sugar cane zone
- Irrigated land
- Area not used for agriculture
- Rail line

Major cities and towns:

- More than 1 million inhabitants
- 100,000 to 1 million inhabitants
- 20,000 to 100,000 inhabitants
- Selected towns with less than 20,000 inhabitants

0 250 500 750 Kilometers
0 250 500 Miles

Australia Today

- Sheep zone
- Wheat-sheep zone
- Beef cattle zone
- Dairying zone
- Sugar cane zone
- Irrigated land
- Area not used for agriculture
- Rail line

Major cities and towns:

- More than 1 million inhabitants
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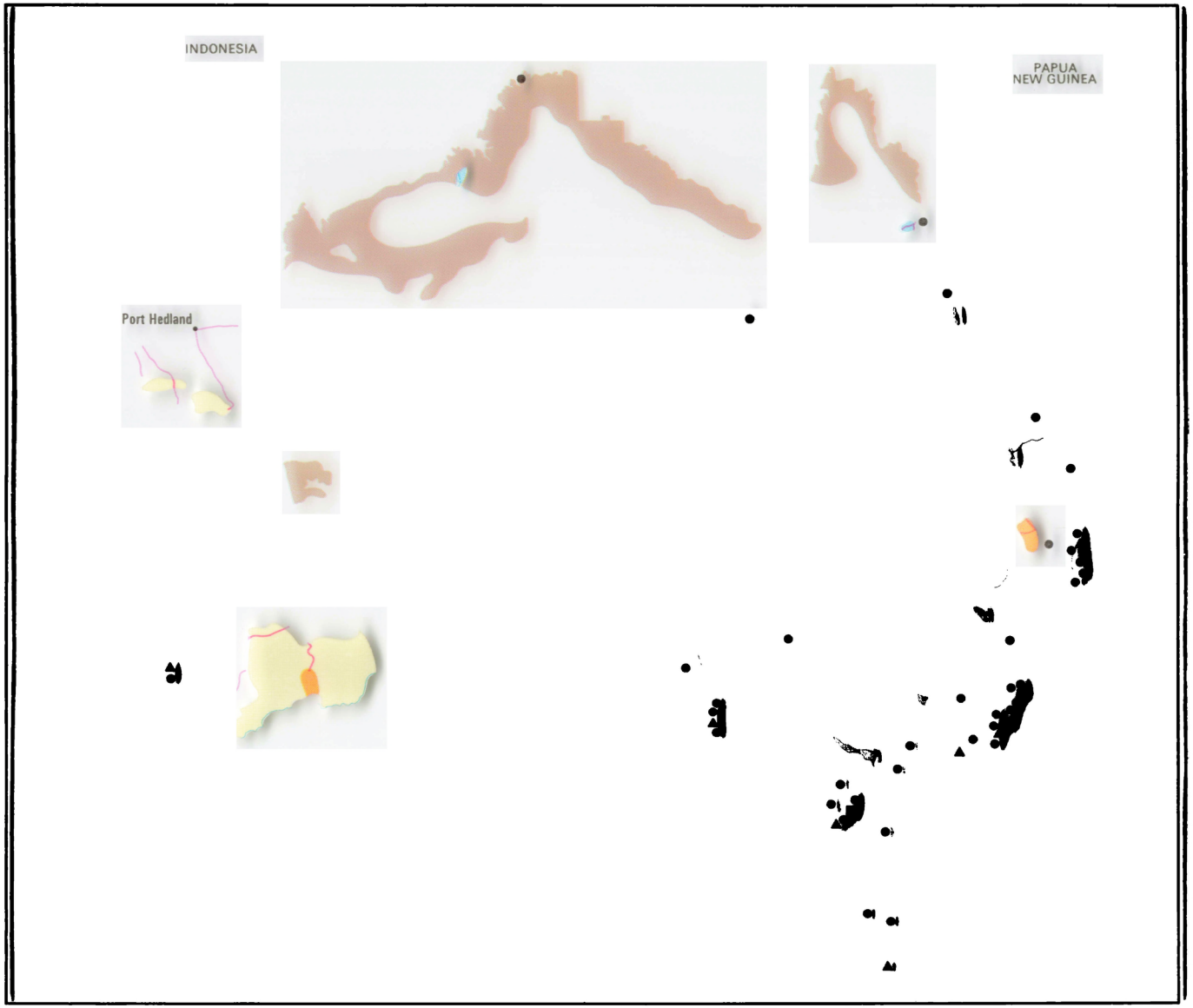
- 20,000 to 100,000 inhabitants
- Selected towns with less than 20,000 inhabitants

0 250 500 750 Kilometres

0 250 500 Miles



Australia: Rainfall and Temperature

Average yearly rainfall:

- Less than 127 millimetres / Less than 5 inches
- 127 to 254 millimetres / 5 to 10 inches
- 254 to 508 millimetres / 10 to 20 inches
- 508 to 762 millimetres / 20 to 30 inches
- 762 to 1270 millimetres / 30 to 50 inches
- More than 1270 millimetres / More than 50 inches

The average January and July temperatures in degrees Celsius are shown for selected weather stations.

Bourke
29°
11°

0 250 500 750 Kilometres
0 250 500 Miles

WORLD BOOK map
From *Atlas of Australian Resources*, © Department of National Development —reproduced by permission.

Australia: Resources and Industry

Fuels:

- Coal
- Natural gas
- Oil

Metallic minerals:

- Aluminum (Bauxite)
- Copper
- Gold
- Iron
- Lead and zinc
- Manganese
- Nickel
- Silver
- Tin
- Tungsten

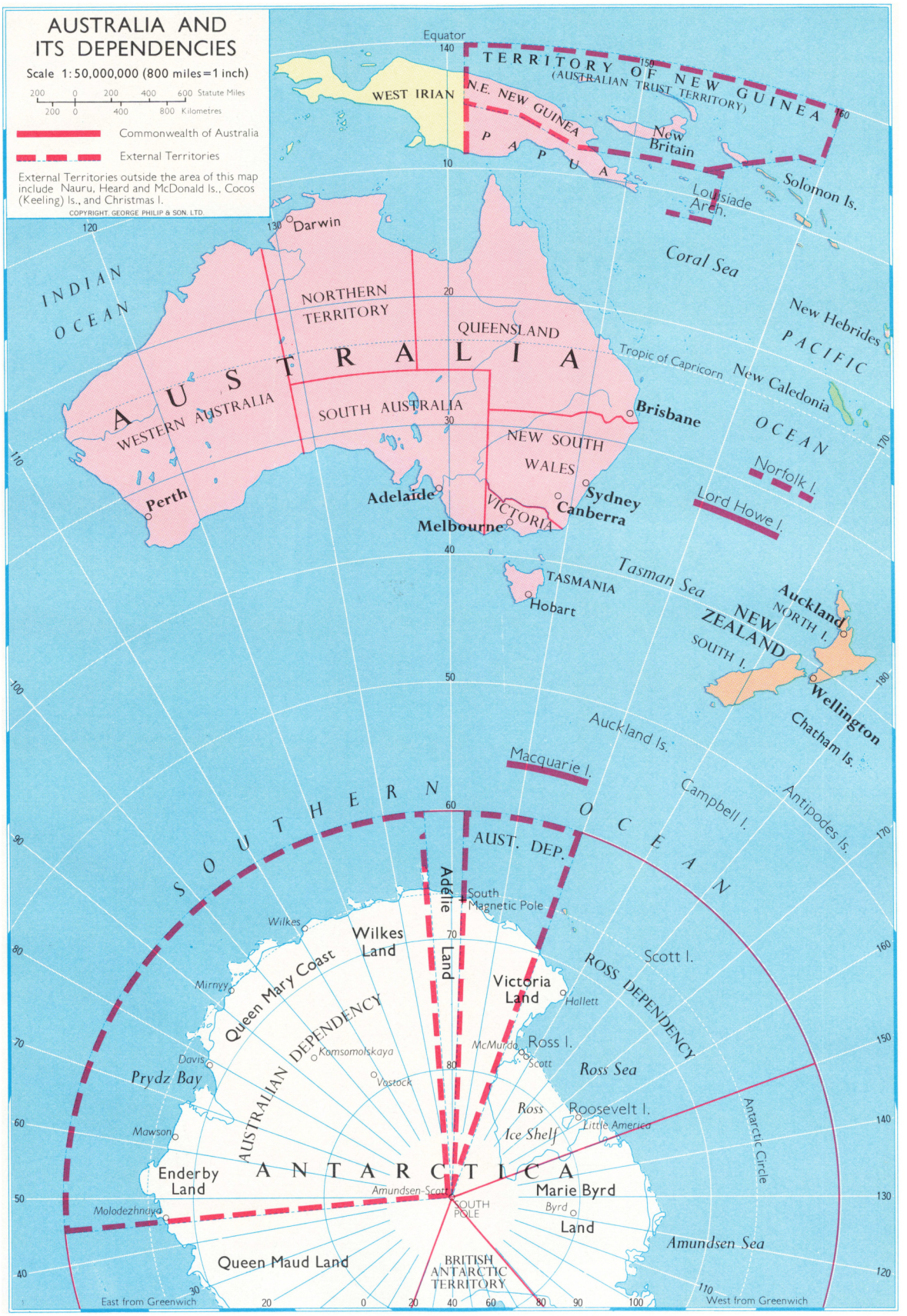
Nonmetallic minerals:

- Dolomite
- Limestone
- Mineral sand
- Opal
- Phosphate
- Pyrite
- Salt

- Major manufacturing centre
- Major hydroelectric area
- Major artesian basin

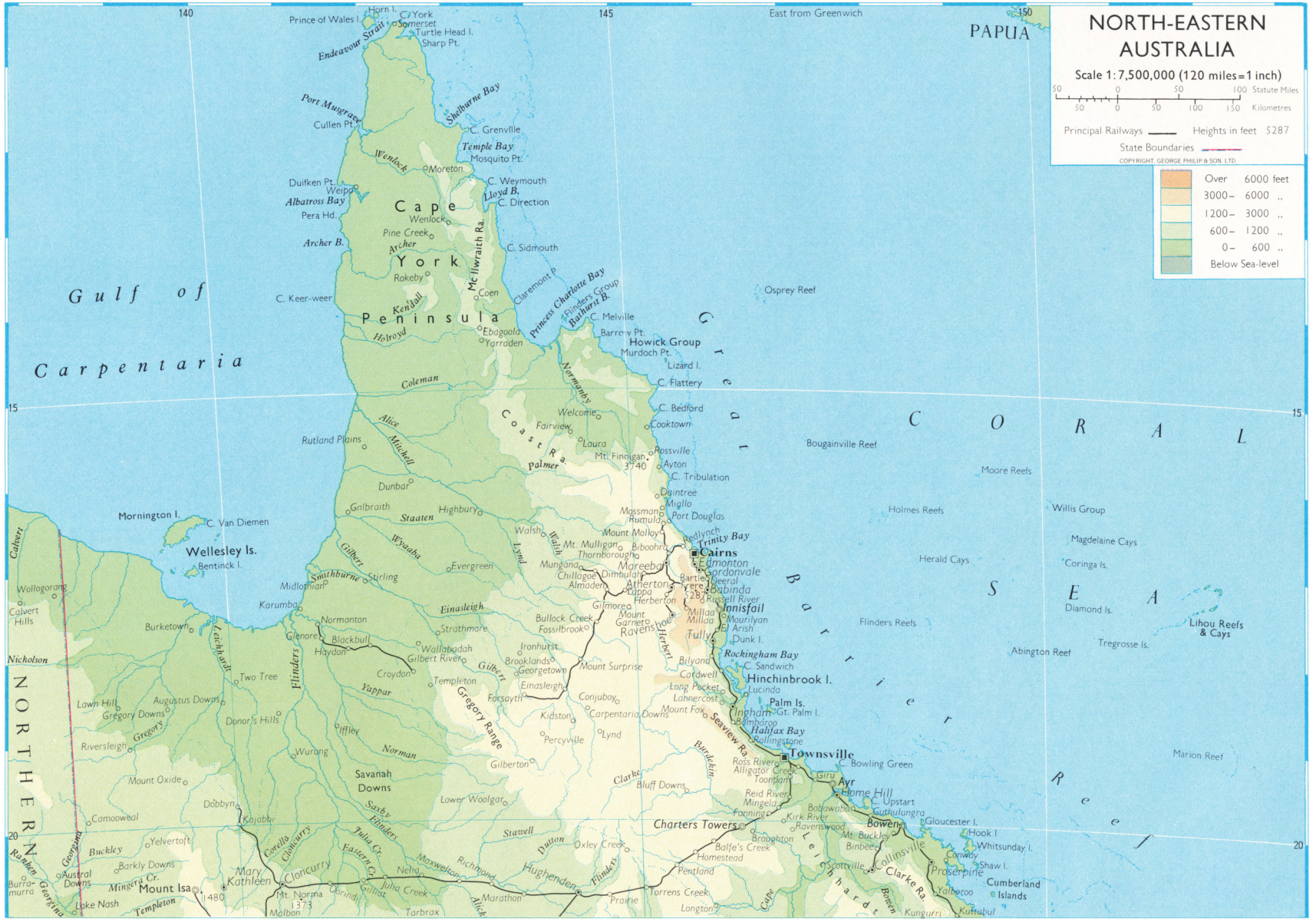
0 250 500 750 Kilometres
0 250 500 Miles

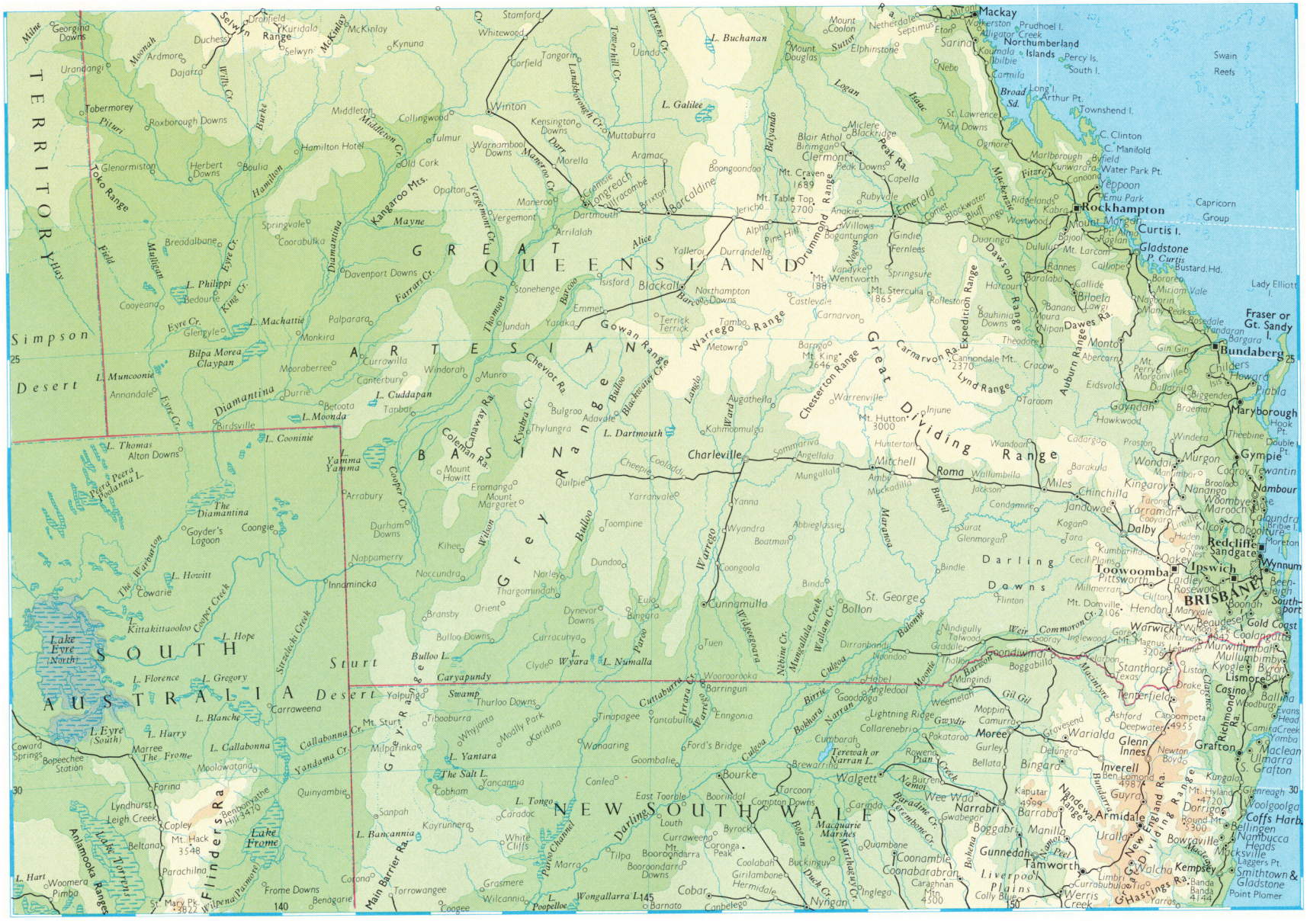
WORLD BOOK map


AUSTRALIA AND ITS DEPENDENCIES
Scale 1:50,000,000 (800 miles=1 inch)
200 0 200 400 600 Statute Miles
200 0 400 800 Kilometres
Commonwealth of Australia
External Territories
External Territories outside the area of this map include Nauru, Heard and McDonald Is., Cocos (Keeling) Is., and Christmas I.
COPYRIGHT. GEORGE PHILIP & SON. LTD.
Equator
TERRITORY OF NEW GUINEA
(AUSTRALIAN TRUST TERRITORY)
WEST IRIAN
N.E. NEW GUINEA
PAPUA
New Britain
Louisiade Arch.
Solomon Is.
Coral Sea
New Hebrides
PACIFIC OCEAN
New Caledonia
Tropic of Capricorn
INDIAN OCEAN
Darwin
NORTHERN TERRITORY
QUEENSLAND
AUSTRALIA
WESTERN AUSTRALIA
SOUTH AUSTRALIA
NEW SOUTH WALES
VICTORIA
Brisbane
Perth
Adelaide
Melbourne
Sydney
Canberra
Norfolk I.
Lord Howe I.
TASMANIA
Hobart
Tasman Sea
NEW ZEALAND
NORTH I.
SOUTH I.
Auckland
Wellington
Chatham Is.
Auckland Is.
Macquarie I.
Campbell I.
Antipodes Is.
SOUTHERN OCEAN
AUST. DEP.
Adélie Land
South Magnetic Pole
Wilkes
Wilkes Land
Queen Mary Coast
Mirnyy
AUSTRALIAN DEPENDENCY
Komsomolskaya
Vostock
Victoria Land
Hallett
ROSS DEPENDENCY
Scott I.
Ross I.
McMurdo
Scott
Ross Sea
Ross Ice Shelf
Roosevelt I.
Little America
Antarctic Circle
Davis
Prydz Bay
Mawson
Enderby Land
ANTARCTICA
Amundsen-Scott
SOUTH POLE
Marie Byrd Land
Byrd
Molodezhnaya
Amundsen Sea
Queen Maud Land
BRITISH ANTARCTIC TERRITORY
East from Greenwich
West from Greenwich

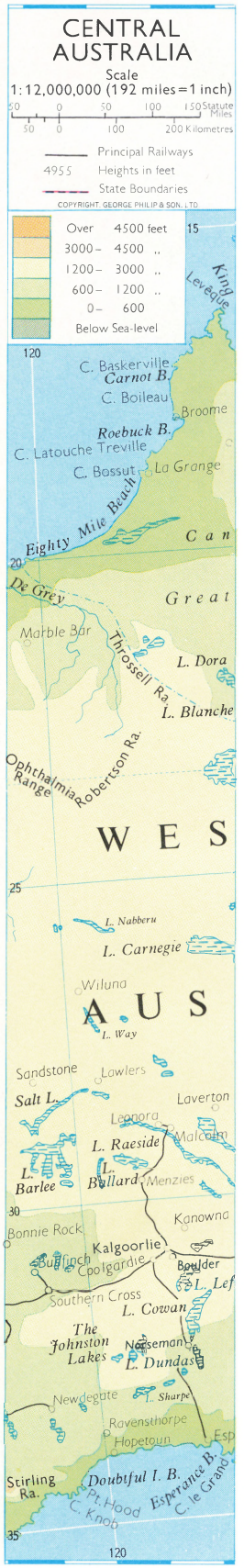
SOUTH AUSTRALIA
NEW SOUTH WALES
VICTORIA
WESTERN DIVISION
UPPER NORTH
LOWER NORTH
MURRAY
MALLEE
EYRE PENINSULA
WIMMERA
SOUTH EASTERN
NORTH CENTRAL
CENTRAL
WESTERN
Flinders Range
Lake Frome
Broken Hill
Main Barrier Range
Darling
Murray
ADELAIDE
Port Adelaide
Port Elizabeth
Gulf St. Vincent
Encounter Bay
Backstairs Passage
Lacepede Bay
Guichen B.
L. Eliza
L. George
Mount Gambier
C. Northumberland
Discovery Bay
C. Bridgewater
C. Nelson
Portland
Warrnambool
C. Otway
Port Fairy
Port Campbell
Apollo Bay
Lorne
Geelong
Ballarat
Bendigo
Echuca
Swan Hill
Mildura
Horsham
Hamilton
Ararat
Warracknabeal
Hopetoun
Maryborough
Castlemaine
Eaglehawk
Shepparton
MELBOURNE
Williamstown
Port Melbourne
Oakleigh
Dandenong
Frankston
Mordialloc
Chelsea
Phillip
Mornington
Queenscliff
Sorrento
Red Hill South
C. Schanck
Point Grant
C. Woolamai
Anderson
Wonthaggi
Venus B.
Port Phillip
Port Grant
Port Fairy
Port Campbell
Princetown
Wattle Hill
Peterborough
Port Pirie
Port Augusta
Port MacDonnell
Port Nelson
Port Victoria
Port Wakefield
Port Gawler
Port Elliot
Victor Harbour
Port Jervis
Port Lincoln
Port Germein
Port Pirie
Port Augusta
Port Lincoln

SOUTH-EASTERN AUSTRALIA
Scale 1:4,500,000 (72 miles=1 inch)
Statute Miles
Kilometres
Principal Railways
Heights in feet
State Boundaries
Over 6000 feet
4500– 6000 ,,
3000– 4500 ,,
1200– 3000 ,,
600– 1200 ,,
600 ,,
COPYRIGHT GEORGE PHILIP & SON LTD
NEW SOUTH WALES
AUSTRALIAN CAPITAL TERRITORY
VICTORIA
TASMAN SEA
SYDNEY
Newcastle
Wollongong
Canberra
Goulburn
Orange
Bathurst
Lithgow
Dubbo
Parkes
Forbes
Wagga Wagga
Albury
Cooma
Bairnsdale
Sale
Traralgon
Tamworth
Armidale
Kempsey
Taree
Maitland
Blue Mountains (Katoomba)
Great Dividing Range
Great Australian Alps
Great Gourock Range
Great Hunter Range
Great Liverpool Range
Great Northern Tablelands
Great Western Slopes
Great Central Plains
Great Western Tablelands
Great Central Tablelands
Great Dividing Range
Great Hastings Range
Great Manning Range
Great Cullarine Range
Great Southern Highlands
Great Eastern Highlands


NORTH-EASTERN AUSTRALIA
Scale 1:7,500,000 (120 miles=1 inch)
Statute Miles
Kilometres
Principal Railways
Heights in feet 5287
State Boundaries
COPYRIGHT. GEORGE PHILIP & SON. LTD.
Over 6000 feet
3000– 6000 ,,
1200– 3000 ,,
600– 1200 ,,
0– 600 ,,
Below Sea-level
East from Greenwich
PAPUA
Gulf of Carpentaria
Cape York Peninsula
Great Barrier Reef
CORAL SEA
NORTHERN
Prince of Wales I.
Horn I.
C. York
Somerset
Turtle Head I.
Sharp Pt.
Endeavour Strait
Port Musgrave
Cullen Pt.
Shelburne Bay
C. Grenville
Temple Bay
Mosquito Pt.
Wenlock
Moreton
C. Weymouth
Lloyd B.
C. Direction
Duifken Pt.
Weipa
Albatross Bay
Pera Hd.
Archer B.
Pine Creek
Archer
Rokeby
McIlwraith Ra.
C. Sidmouth
Claremont P.
Princess Charlotte Bay
Flinders Group
Bathurst B.
C. Melville
Barrow Pt.
Howick Group
Murdoch Pt.
Lizard I.
C. Flattery
C. Bedford
Cooktown
Osprey Reef
C. Keer-weer
Kendall
Holroyd
Ebagoola
Yarraden
Coleman
Normanby
Welcome
Fairview
Laura
Mt. Finnigan 3740
Rossville
Ayton
C. Tribulation
Bougainville Reef
Moore Reefs
Rutland Plains
Alice
Mitchell
Palmer
Coast Ra.
Dunbar
Galbraith
Staaten
Highbury
Daintree
Miallo
Massman
Rumula
Port Douglas
Holmes Reefs
Willis Group
Mornington I.
C. Van Diemen
Wellesley Is.
Bentinck I.
Calvert
Wyaaba
Walsh
Mt. Mulligan
Mount Molloy
Redlynch
Trinity Bay
Cairns
Magdelaine Cays
Herald Cays
Coringa Is.
Gilbert
Stirling
Evergreen
Lynd
Thornborough
Biboohra
Mungana
Chillagoe
Almaden
Dimbulah
Mareeba
Edmonton
Gordonvale
Atherton
Tolga
Herberton
Bartle Frere
Geeral
Babinda
Russell River
Smithburne
Midlothian
Karumba
Einasleigh
Gilmore
Mount Garnet
Ravenshoe
Millaa Millaa
Innisfail
Mourilyan
Arlish
Tully
Dunk I.
Diamond Is.
Lihou Reefs & Cays
Flinders Reefs
Tregrosse Is.
Abington Reef
Wollogorong
Calvert Hills
Burketown
Normanton
Glenore
Blackbull
Haydon
Strathmore
Bullock Creek
Fossilbrook
Herbert
Rockingham Bay
C. Sandwich
Nicholson
Leichhardt
Flinders
Wallaboadah
Gilbert River
Ironhurst
Brooklands
Georgetown
Mount Surprise
Bilyana
Cardwell
Hinchinbrook I.
Lucinda
Two Tree
Croydon
Templeton
Gilbert
Einasleigh
Yappar
Forsayth
Conjuboy
Long Pocket
Lahnercost
Palm Is.
Gt. Palm I.
Lawn Hill
Augustus Downs
Gregory Downs
Gregory
Gregory Range
Kidston
Carpentaria Downs
Mount Fox
Ingham
Bambaroo
Halifax Bay
Rollingstone
Seaview Ra.
Donor's Hills
Iffley
Percyville
Lynd
Riversleigh
Wurung
Norman
Gilberton
Townsville
Ross River
Alligator Creek
Toonpan
C. Bowling Green
Marion Reef
Mount Oxide
Savanah Downs
Clarke
Bluff Downs
Burdekin
Giru
Ayr
Home Hill
Reid River
Mingela
Fanning
C. Upstart
Bowen
Guthulungra
Gloucester I.
Hook I.
Whitsunday I.
Dobbyn
Kajabbi
Camooweal
Lower Woolgar
Saxby
Flinders
Stawell
Charters Towers
Bohawabo
Kirk River
Ravenswood
Mt. Buckley
Binbee
Collinsville
Conway
Shaw I.
Proserpine
Cumberland Islands
Yelvertoft
Buckley
Corella
Clonculry
Julia Cr.
Eastern Cr.
Dutton
Oxley Creek
Broughton
Balfe's Creek
Homestead
Pentland
Scottville
Leichhardt
Clarke Ra.
Yalboroo
Kuttabul
Kungurri
Bowen
Cape
Rankin
Georgina
Austral Downs
Barkly Downs
Mingera Cr.
Burra-murra
Mount Isa
Lake Nash
Templeton
Mary Kathleen
Cloncurry
Mt. Norma 1373
Molton
Orindi
Gilliat
Nelia
Maxwelton
Richmond
Hughenden
Marathon
Tarbrax
Prairie
Torrens Creek
Longton
Alice
Flinders
Julia Creek
1480


GREAT QUEENSLAND
ARTESIAN BASIN
Great Dividing Range
Grey Range
Darling Downs
SOUTH AUSTRALIA
NEW SOUTH WALES
NORTHERN TERRITORY
Simpson Desert
Sturt Desert
Lake Eyre North
L. Eyre (South)
Lake Frome
Lake Torrens
Flinders Ra.
Anlamoolka Ranges
Grey Ra.
Main Barrier Ra.
Darling R.
Paroo Channel
Macquarie Marshes
Liverpool Plains
New England Ra.
Great Dividing Range
Mackay
Northumberland Islands
Rockhampton
Curtis I.
Gladstone
Fraser or Gt. Sandy I.
Bundaberg
Maryborough
Gympie
Nambour
Redcliffe
Sandgate
Wynnum
BRISBANE
Ipswich
Toowoomba
Gold Coast
Lismore
Casino
Grafton
Coffs Harb.
Armidale
Tamworth
Gunnedah
Narrabri
Moree
Goondiwindi
Warwick
Roma
Charleville
Longreach
Winton
Cloncurry
Mt. Isa
Cooma
Bourke
Cobar
Nyngan
Walgett
Brisbane
Sydney
Newcastle
Tasman Sea
Coral Sea
Capricorn Group
Swain Reefs
Lady Elliott I.
Fraser I.
Moreton I.
Stradbroke I.
Mt. Kosciusko
Mt. Bogong
Mt. Hotham
Mt. Feathertop
Mt. Buffalo
Mt. Kaputar
Mt. Hay
Mt. Hack
Mt. Sturt
Mt. Gambier
Mt. Lofty
Mt. Bryant
Mt. Gambier
Mt. Lofty
Mt. Bryant
Mt. Gambier
Mt. Lofty
Mt. Bryant

WESTERN AUSTRALIA
Scale
1:7,500,000 (120 miles = 1 inch)
Over 3000 feet
1200 – 3000 ,,
600 – 1200 ,,
0 – 600 ,,
Principal Railways
4024 Heights in feet
COPYRIGHT. GEORGE PHILIP & SON. LTD.
NORTH WESTERN BASIN
INDIAN OCEAN
AUSTRALIA
Hamersley Range
Dampier Archipelago
Port Hedland
Geraldton
Carnarvon
Kalgoorlie
Boulder
Merredin
Northam
PERTH
Fremantle
Bunbury
Albany
Esperance
East from Greenwich


CENTRAL AUSTRALIA
Scale
1:12,000,000 (192 miles = 1 inch)
Statute Miles
Kilometres
Principal Railways
4955 Heights in feet
State Boundaries
COPYRIGHT. GEORGE PHILIP & SON. LTD.
Over 4500 feet
3000 – 4500 ,,
1200 – 3000 ,,
600 – 1200 ,,
0 – 600 ,,
Below Sea-level
Great Sandy Desert
Great Victoria Desert
Gibson Desert
Eighty Mile Beach
Ophthalmia Range
Robertson Ra.
Throssell Ra.
Kalgoorlie
Boulder
Esperance
Stirling Ra.

TIMOR SEA
C. Van Diemen
Bathurst I.
Melville I.
Dundas Str.
Goulburn Is.
Junction B.
Castlereagh B.
Crocodile Is.
C. Wessel
Elcho I.
English Co. Is.
C. Wilberforce
Melville B.
C. Arnhem
P. Bradshaw
Caledon B
C. Grey
Blue Mud B.
Gulf of Carpentaria
Groote Eylandt
C. Beatrice
Limmen Bight
Maria I.
Sir Edward Pellew Group
Vanderlin I.
Mornington I.
C. van Diemen
Wellesley Is.
Bentinck I.
Clarence Str.
Van Diemen Gulf
P. Darwin
DARWIN
P. Patterson
Buckingham B.
Arnhem B.
Arnhem Land
Bonaparte Archipelago
C. Londonderry
C. Talbot
Vansittart B.
C. Bougainville
Admiralty G.
Montague Sd.
York Sd.
Brunswick B.
Collier B.
Yampi Sound
King Sd.
Meda
Derby
C. Blaze
Anson B.
C. Ford
Jos. Bonaparte Gulf
Cambridge G.
Queens Chan.
Rum Jungle
Pine Creek
Daly
Katherine
Roper
Drysdale
Wyndham
Gulf Basin
Victoria
Mt. Hann 2800
Kimberley
Ord
Durack Range
Glenroy
Hall's Creek
Fitzroy
Fitzroy Crossing
Dampier Downs
Gordon Downs
Sturt
Victoria River Downs
Birdum
Daly Waters
McArthur
Wave Hill
Newcastle Waters
L. Woods
Powell Creek
Barkly Tableland
L. Sylvester
Tennant Creek
Burketown
Leichhardt
Dobbyn
Camooweal
Avon Downs
Austral Downs
Mount Isa
Mary Kathleen
Cloncurry
Duchess
Dajarra
Selwyn
Georgina
Boulia
NORTHERN TERRITORY
QUEENSLAND
Gregory Salt Sea
Sandy Desert
Murchison Ras.
Davenport Ra.
Barrow Creek
Sandover Cr.
Reynolds Ra.
L. Mackay
Mt. Ziel 4955
L. Macdonald
Macdonnell Ra.
Tropic of Capricorn
Hay
Alice Springs
L. Disappointment
Gibson Desert
WESTERN AUSTRALIA
Rawlinson Ras.
James Ra.
Finke
Palmer
Hugh
L. Amadeus
Ayers Rock 2820
Simpson Desert
Great Sandy Desert
Eyre Cr.
L. Diamantina
Machattie
Mulligan
Birdsville
L. Buchanan
Barrow Ra.
Musgrave Ranges
Mt. Woodroffe 4970
Charlotte Waters
L. Wells
Hamilton
Alberga
Oodnadatta
Macumba
Hanson Ra.
Artesian Basin
Warburton
L. Yamma n Yamma
Cooper's Cr
Yeo L.
Great Victoria Desert
Warrina
Denison Ra.
L. Eyre (North)
L. Gregory
Strzelecki Cr.
Sturt Desert
L. Rason
L. Carey
L. Minigwal
L. Maurice
Stuarts Ra.
L. Eyre (South)
L. Blanche
L. Callabonna
Premier Downs
Maralinga
Ooldea
Tarcoola
Leigh Creek
Marree
L. Frome
Zanthus
Rawlinna
Forrest
Deakin
Eucla Basin
Nullarbor Plain
L. Harris
Woomera
Pimba
Copley
L. Everard
L. Lorens
Flinders Range
St. Mary's Pk. 3822
Hawker
Hampton Ra.
Eucla
Eyre
Head of Bight
C. Adieu
Penong
Ceduna
L. Gairdner
Fowlers B.
Gawler Ranges
L. Macfarlane
Quorn
Port Augusta
Mt. Brown 3174
Broken Hill
Main Barrier Ra.
S. Australia
Pt. Dover
Pt. Culver
Streaky B.
C. Radstock
Iron Knob
Whyalla
Kimba
P. Pirie
Peterborough
Jamestown
Burra
Kadium Hill
Great Australian Bight
Anxious B.
Eyre Penin.
Rocky Pt.
Investigator Group
Wallaroo
Kadina
Murray
Wentworth
C. Pasley
C. Arid
Archipelago of the Recherche
Coffin B. Penin.
Whidbey Is.
Port Lincoln
C. Catastrophe
Thistle I.
Spencer Gulf
Yorke Penin.
G. St. Vincent
Gawler
Elizabeth
ADELAIDE
Renmark
Mildura
Murray River
Mt. Lofty
Murray Bridge
Pinnaroo
Ouyen
Murray Basin
C. Spencer
Investigator Str.
Kangaroo I.
Victor Harb.
125
130
135
140
East from Greenwich
15
20
25
30
35

NEW GUINEA
Scale 1:10,000,000 (160 miles=1 inch)
Principal Roads
Heights in feet
International Boundaries
Over 12,000 feet
6000–12,000 ,,
3000– 6000 ,,
1200– 3000 ,,
600– 1200 ,,
0– 600 ,,
TASMANIA
Scale 1:3,500,000 (56 miles=1 inch)
Principal Railways
Principal Roads
Heights in feet
Over 3000 feet
1200– 3000 ,,
600– 1200 ,,
0– 600 ,,
COPYRIGHT. GEORGE PHILIP & SON. LTD.
TERRITORY OF NEW GUINEA
(AUSTRALIAN TRUST TERRITORY)
Bismarck Archipelago
Bismarck Sea
NORTH-EAST NEW GUINEA
PAPUA
SOLOMON SEA
CORAL SEA
BASS STRAIT
Port Moresby
Lae
Wau
Goroka
Madang
Rabaul
Kavieng
Port Moresby
Hobart
Launceston
Burnie
Devonport
Queenstown
Zeehan
Wynyard
Scottsdale
Bruny I.
Flinders Island
Furneaux Group
Tasman Pen.
East from Greenwich

TEACHING; and UNIVERSITIES AND COLLEGES in the main volumes.

Work. The people of Australia have a great variety of occupations open to them. Australia is the leading sheep-raising country in the world. It is also one of the world's most highly industrialized countries.

Farm products make up four-fifths of Australia's exports. Wool and wheat are the two main primary products. Beef production, dairying, fruit growing, and sugar growing also contribute greatly to the country's economy. For further information, see the following articles in the Australasian volumes:

AGRICULTURE
ARTESIAN WATER
COTTON INDUSTRY
DAIRY INDUSTRY
FISHING INDUSTRY
FRUIT GROWING
IRRIGATION
MEAT PRODUCTION
RICE GROWING
SNOWY MOUNTAINS SCHEME
SUGAR INDUSTRY
TIMBER INDUSTRY
TRADE OF AUSTRALIA
WHEAT PRODUCTION
WINE PRODUCTION
WOOL PRODUCTION

Since World War II, the number of factories and factory workers in Australia have more than doubled. Today, Australian factories produce almost all the country's manufactured goods. Its major industries produce motor-cars, paper, steel, and textiles. Australia's resources supply an abundant amount of raw material for its growing industries. Australia is the leading producer of lead in the world, and one of the leading producers of gold, iron, silver, and zinc. For further information about natural resources and manufacturing in Australia, see the following articles:

AIRCRAFT INDUSTRY
ALUMINIUM INDUSTRY
BREWING INDUSTRY
COAL-MINING
COPPER MINING
ELECTRICAL INDUSTRY
ENGINEERING INDUSTRY
FOOD PROCESSING
GOLD-MINING
IRON AND STEEL INDUSTRY
LEAD MINING
MOTOR INDUSTRY
PEARL INDUSTRY
PETROLEUM INDUSTRY
PULP AND PAPER INDUSTRY
SHIPBUILDING
SILVER MINING
TEXTILE INDUSTRY
TIN MINING
URANIUM MINING
ZINC MINING

For general information about industries that play a large part in the development of Australia, see the following articles in the main volumes:

AUTOMOBILE
BUILDING CONSTRUCTION
CHEMICAL INDUSTRY
ENGINEERING
FISHING INDUSTRY
IRON AND STEEL
MANUFACTURING
MINING
RETAILING
SHIP AND SHIPPING
TECHNOLOGY
TRADE

Industry depends on efficient transport and distribution services. See AIR TRANSPORT; RAILWAYS; ROADS AND HIGHWAYS; SHIPPING SERVICES.

Commerce and finance are based on the theories of economics (see ECONOMICS in the main volumes). For information on communications, see COMMUNICATION; MOTION PICTURE; NEWSPAPER; RADIO; and TELEVISION in the main volumes. See also BROADCASTING; POSTAL SERVICES; and PUBLISHING.

Leisure. Australia is a nation of sportsmen. See the following articles:

ATHLETICS
AUSTRALIAN RULES FOOTBALL
BASKETBALL
BOWLS
CRICKET
CYCLING
FISHING
GOLF
GYMNASTICS
HOCKEY
HORSE-RACING
HUNTING
MOTOR-RACING
ROWING
RUGBY LEAGUE
RUGBY UNION
SAILING
SKI-ING
SOCCER
SQUASH
SURF LIFE-SAVING
SURFING
SWIMMING
TABLE TENNIS
TENNIS
TRAMPING

See also the following general articles in the main volumes:

AUTOMOBILE RACING
BICYCLE RACING
BOWLING
CRICKET
FIELD HOCKEY
FISHING
GAME
GOLF
HORSE RACING
LAWN BOWLING
MOTORCYCLE
POLO
RUGBY
SAILING
SOCCER
SPORTS AND SPORTSMANSHIP
SQUASH
SWIMMING
TABLE TENNIS
TENNIS
TRACK AND FIELD

Most hobbies and pastimes have separate articles in the international volumes.

History and Culture

The international and Australasian volumes contain many articles about people and events in the history of Australia. For information about the history of Australia as a whole, see HISTORY OF AUSTRALIA and its list of related articles. For the history of the states, cities, towns, and territories of Australia, see the *History* sections of the state, city, town, and territory articles. See also the following general articles:

AUSTRALIA FELIX
AUSTRALIND
BLACKBIRDERS
BOTANY BAY
BUSHRANGERS
ENDEAVOUR
EUREKA STOCKADE
FEMALE FACTORIES
FORT DENISON
KANAKAS
KOKODA TRAIL
KURNELL
NEW HOLLAND
NEW SOUTH WALES CORPS
PARAGUAYAN SETTLEMENTS
PETROV AFFAIR
RESPONSIBLE GOVERNMENT
RUM REBELLION
SEALERS AND WHALERS
SQUATTERS
SWAN RIVER COLONY

For a description of the arts of Australia, see the following articles and their lists of related articles in the main volumes:

ARCHITECTURE
LITERATURE
MUSIC
PAINTING

The Australasian volumes have the following articles relating to the arts of Australia:

ARCHITECTURE
ARTS OF AUSTRALIA
BALLET
CENSORSHIP
ELIZABETHAN THEATRE TRUST
LITERATURE OF AUSTRALIA
MUSEUMS AND ART GALLERIES
MUSIC IN AUSTRALIA
OPERA
THEATRE

AUSTRALIA is a name that comes from the Latin word *australis,* meaning *southern.* Perhaps its earliest form *Terra Australis,* meaning *South Land,* referred to a supposed southern continent. It was used on several early maps, notably in the world chart of 1569 prepared by the Flemish geographer Gerhardus Mercator.

The Portuguese navigator Pedro Fernandez de Quiros reached the New Hebrides in 1606 and gave the name *Austrialia del Espiritu Santo* (Southland of the Holy Spirit) to all of the southern regions as far as the South Pole. From 1642, when the Dutch explorer Abel Janszoon Tasman sighted the coast of Tasmania, which he considered part of the southern continent, the continent became known as *Nova Hollandia* (New Holland).

The earliest recorded use of the present form *Australia* appears to have been in Alexander Dalrymple's collection of *Voyages of the South Seas* (1770). Captain James Cook referred to the continent as *New Holland,* but in 1770 claimed the eastern coast in the name of *New South Wales.* Captain Arthur Phillip's commission of 1786 constituted him Governor of New South Wales.

Matthew Flinders, in the preface to his *Voyage to Terra Australis* (1814), noted that, "Had I permitted myself any innovation upon the original term Terra Australis it would have been to convert it into Australia". The British government preferred the name New South Wales in its official correspondence. But by 1824, when the charts of Captain Phillip Parker King's maritime surveys of the continent were published, the name *Australia* was in common use.

AUSTRALIA DAY is celebrated as a national holiday throughout Australia on January 26 of each year. It commemorates the arrival of the First Fleet under Arthur Phillip and the hoisting of the British flag at Sydney Cove in 1788. January 26 was first celebrated as a public holiday in 1833. In some states, the day was called *Anniversary Day.* In others, it was called *Foundation Day.* In 1931, Victoria introduced the term *Australia Day.*

AUSTRALIA FELIX was the name given by the explorer Sir Thomas Mitchell to a large tract of excellent farming and pasture land in Victoria. The area is now known as the *Western District.* In 1836, Mitchell crossed the Murray River and followed it to the Avoca River towards the coast. He was delighted to find vast areas of grassland on either side of him, and eventually named all the plains west of Port Phillip *Australia Felix.* See also HISTORY OF AUSTRALIA in this volume; MITCHELL, SIR THOMAS LIVINGSTONE, in the other Australasian volume.

AUSTRALIA PARTY. See POLITICAL PARTIES OF AUSTRALIA (Minor Parties) in the other Australasian volume.

AUSTRALIAN ACADEMY OF THE HUMANITIES is a council of up to 50 elected members, as well as honorary and special members. Its functions include assisting scholars from other countries to visit Australia and helping Australians to visit other countries for consultation, teaching, and research in the humanities. The council has also conducted surveys on the humanities and on language teaching in Australia. It arranges annual lectures and seminars on topics of general academic interest, and keeps in contact with international bodies of similar interests. The academy was founded in 1957 as The Australian Humanities Research Council and was transformed to the Australian Academy of the Humanities by royal charter in 1969.

AUSTRALIAN ALPS, the "playground of Australia", contain the highest mountains in Australia. They lie at the southern end of the Great Dividing Range in south-eastern New South Wales and eastern Victoria. Geologists sometimes describe the Alps as the watershed between the Murray and Snowy rivers (see MURRAY and SNOWY in the other Australasian volume). The Australian Alps rise to a height of 2,230 metres (7,316 feet) above sea level at Mount Kosciusko, in New South Wales. A large part of them becomes snow-covered during winter, and a large number of valleys become winter sports centres. For location, see AUSTRALIA (colour maps) in this volume. See also MOUNT KOSCIUSKO and SNOWY MOUNTAINS SCHEME in the other Australasian volume.

AUSTRALIAN AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE is a scientific organization that plays an important part in promoting the exchange of scientific information throughout the Commonwealth of Nations. ANZAAS meets every 18 months. Hundreds of papers on scientific subjects may be delivered during a single meeting, which usually lasts about five days. The association publishes the *Australian Journal of Science.* It was founded in 1888 as the Australasian Association for the Advancement of Science. It adopted its present title in 1930. See SCIENTIFIC RESEARCH in the other Australasian volume.

AUSTRALIAN CAPITAL TERRITORY (A.C.T.). See CANBERRA and GOVERNMENT OF AUSTRALIA (History) in this volume.

AUSTRALIAN CATTLE DOG, also known as the QUEENSLAND or BLUE HEELER, was bred specifically for droving and rounding up cattle. It is a silent, tireless worker. It moves the cattle by first gauging how they kick, then running in to bite the heel of the leg bearing the weight of the animal and quickly dropping to the ground so that the rising hoof kicks harmlessly over its head. The Australian cattle dog is descended from smooth-coated collies that were crossed with dingoes and with kelpie and Dalmatian strains. Its coat colours are a distinctive blue speckle with tan markings or red speckle with darker red markings.

AUSTRALIAN COAT OF ARMS contains the badges of the six states of the Commonwealth of Australia enclosed in an ermine border. The badges give each state a representation on the arms. The ermine border signifies the federation of the states into a single Commonwealth. The crest of the arms is a seven-pointed gold star on a gold and blue wreath. Six points of the star represent the states and the seventh represents the federal territories. The supporters are examples of Australian wildlife, a kangaroo and an emu. Usually the arms are depicted in a compartment with two sprigs of wattle and a scroll

with the word *Australia* written on it under the arms. But the wattle and the scroll are not considered an official part of the arms.

The New South Wales emblem consists of a white shield with the cross of St. George on it. Each arm of the cross bears a seven-pointed star. Together, these stars represent a stylized Southern Cross. The Southern Cross also appears in the Victorian emblem, on a blue background topped by an imperial crown. Queensland uses a blue Maltese Cross, with an imperial crown at its centre. South Australia has the piping shrike as its emblem. Western Australia's emblem is a black swan swimming.

See also AUSTRALIA (Government [picture]) in the main volumes.

AUSTRALIAN CONSTITUTION. See GOVERNMENT OF AUSTRALIA (The Federal Parliament; Powers of the Federal Government; History) in this volume.

AUSTRALIAN ENGLISH. See SLANG in the other Australasian volume.

AUSTRALIAN IMPERIAL FORCE (AIF). See ARMED SERVICES OF AUSTRALIA (History) in this volume.

AUSTRALIAN INLAND MISSION is an organization that provides for the spiritual and physical needs of people in the thinly populated interior of Australia. The mission cares for the needs of people of all religious denominations. It owns churches, hospitals, schools, hostels, and welfare clubs.

The Presbyterian Church established the Australian Inland Mission in 1912 following a report on the interior made by one of its clergymen, John Flynn. Flynn became organizer and superintendent of the mission's work. The first *bush patrol padres*—Robert Bruce Ploughman in South Australia and William James Stephens in Western Australia—began work in 1913. In 1928, the mission established the Aerial Medical Service. In the following year, it installed its first pedal wireless sets at Augustus Downs, in northern Queensland. In 1939, the Aerial Medical Service became the Flying Doctor Service.

See also FLYNN, JOHN, in this volume.

AUSTRALIAN LABOR PARTY (ALP). See POLITICAL PARTIES OF AUSTRALIA (Main Parties) in the other Australasian volume.

AUSTRALIAN LOAN COUNCIL decides the total amount of money to be raised each year by the federal and state governments, except for defence and temporary purposes. It also decides how the money will be distributed. As a rule, each state is represented on the council by its premier, and the federal government is represented by the prime minister. The council meets in Canberra. It was set up in 1927 and given legal standing by an amendment to the constitution in 1928. See GOVERNMENT OF AUSTRALIA (The Australian Loan Council) in this volume.

AUSTRALIAN NATIONAL ANTARCTIC RESEARCH EXPEDITION. See ANTARCTIC RESEARCH in this volume.

AUSTRALIAN NATIONAL ANTHEM. The federal government decided to replace "God Save the Queen" with "Advance Australia Fair" in 1974 after a poll of 60,000 people. The other contenders were "Song of Australia" and "Waltzing Matilda". "Advance Australia Fair" was written by Peter Dodds McCormick, a Scot, in 1878. It was used to introduce radio news bulletins during World War II. Its first verse is:

Australia's sons, let us rejoice,
For we are young and free,
We've golden soil and wealth for toil,
Our home is girt by sea.
Our land abounds in nature's gifts
Of beauty rich and rare,
In history's page let every stage
Advance Australia Fair.
In joyful strains then let us sing
Advance Australia Fair.

AUSTRALIAN NATIONAL UNIVERSITY is located on a beautiful campus of 120 hectares (300 acres) in Canberra. It is composed of six postgraduate research schools, which form the Institute of Advanced Studies, and the School of General Studies, which provides undergraduate and graduate study. The university has a total enrollment of more than 4,000.

The Institute of Advanced Studies is a major centre of academic research in Australia, and has been responsible for attracting many distinguished Australian scholars back to Australia. Its research schools are in medical research, the physical sciences, the social sciences, chemistry, the biological sciences, and Pacific studies. One of Australia's Nobel prize winners, biologist Sir John Eccles, came from the John Curtin School of Medical Research. The Institute attracts many students from overseas, especially from Asia and the Pacific.

The School of General Studies provides undergraduate and graduate study in arts, science, Oriental studies, economics, and law. Its science faculty includes the major forestry school in Australia.

The Australian National University was established in 1946 by the federal government "to encourage, and provide facilities for, postgraduate research and study, both generally and in relation to subjects of national importance to Australia." Research schools in medicine, social sciences, Pacific studies, and physical sciences were established first, then chemistry and biological research.

Canberra University College, formed in 1929 and originally affiliated with Melbourne University, merged with the Australian National University in 1960. It became the School of General Studies.

The university has extensive libraries, including a special collection of books in Asian languages. The campus has excellent teaching and research buildings. Postgraduate students live in flats or halls of residence, and undergraduate students live in halls or in affiliated denominational residential colleges.

AUSTRALIAN PAPER MANUFACTURERS (A.P.M.) is Australia's largest producer of woodpulp, paper, and paperboard. It supplies about three quarters of the total Australian requirements of paper and paperboard products used by the packaging and building industries. A.P.M. is owned by 34,000 Australian shareholders. It employs about 6,000 people. Its largest mill opened at Maryvale, in Victoria, in 1939. A.P.M. also has pulp mills at Port Huon, in Tasmania; at Petrie, near Brisbane; at Millicent, in South Australia; and at Melbourne.

The Age

Australian Rules Football

AUSTRALIAN RULES FOOTBALL is a highly popular winter game that is played mainly in the southern states of Australia. Australian Rules Football was invented by Australians and is played only in Australia and Papua New Guinea.

Every Saturday afternoon in winter, more than 500,000 spectators flock to the major club competitions in South Australia, Tasmania, Victoria, and Western Australia to watch their favourite teams in action. Australian Rules football is a game of great pace and spectacle. Players drive the ball back and forth with long kicks and quick hand passes, and stop it with high, thrilling catches called *marks*. The huge crowd of spectators, the uncertainty of the bounce and flight of the long, oval ball, and the hard clashes add greatly to the excitement of "Footy".

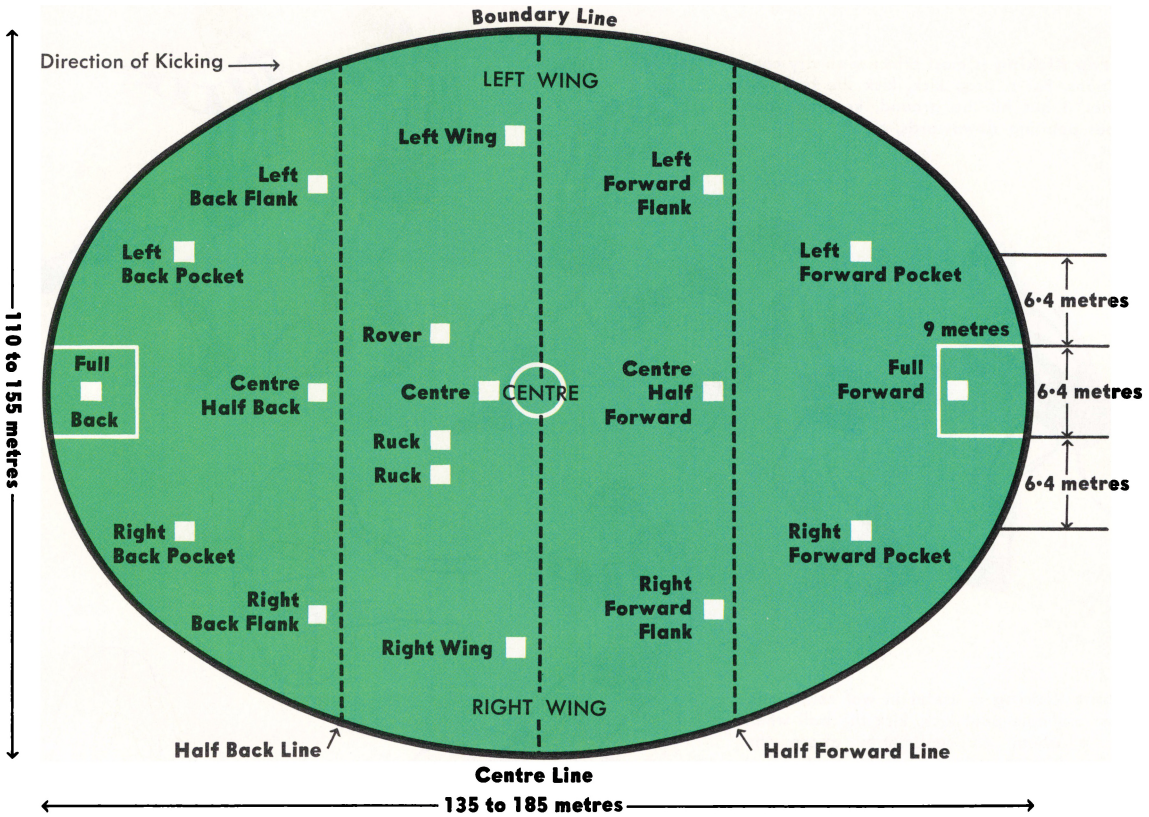
An Australian Rules football team consists of 18 players and 2 reserves, who can be used at any time to replace players who are injured or out of form. During a match, each team tries to score as many points as possible. At the same time, it tries to prevent the opposition from scoring. A *goal* counts as six points and a *behind* as one point. The team that scores the highest number of points wins the match.

A Game of Football

A game of Australian Rules football lasts 100 minutes of actual playing time, divided into equal quarters. This time does not include the intervals between quarters nor *waste time,* which occurs when a ball is out of bounds or after a goal is scored. *Quarter time,* the interval between the first and second quarters, lasts 3 minutes. *Half time,* the interval between the second and third quarters, lasts 20 minutes. *Three-quarter time,* between the third and final quarters, lasts 5 minutes. Teams change scoring ends at the end of each interval.

The Start of a Game. The opposing captains toss a coin to decide the direction in which each team will kick in the first quarter.

On each team, 15 players take up set positions, with the *forwards* (attackers) at the end towards which the team is kicking. The *backs* (defenders) at the other end of the field *mark* (guard) the other team's forwards. The centre line players take up positions across the centre of the ground. Another three players of each team make up the *following division* or *ruck*. A division consists of two *ruckmen* and a *rover*. These followers should follow the ball wherever it goes. Each team has three players on



the field designated as the *second ruck*—two other ruckmen and a second rover. If a member of the *first ruck* needs a rest from following the ball, he changes with his counterpart, and "rests" in one of the 15 fixed positions. When the second ruckman or rover gets tired, he returns to his fixed position again.

At the start of a game, members of the first rucks of the opposing teams take up positions around the centre circle. The umpire begins the game by bouncing the ball in the circle. He holds the ball evenly and tries to get a straight, high bounce. When the ball is in the air, the opposing ruckmen vie with each other in trying to hit the ball with their fist or palm to the rover, or possibly to the centreman. But there is no fixed method of positioning at the centre bounce. Often, wingmen or centre half forwards or backs close in on the central group of players to receive the ball.

From the bounce, players knock, punch, or kick the ball forwards, backwards, or sideways. Their main object is to get the ball and then do something constructive with it by kicking for goal or giving it to a team-mate in a more advantageous position with either a foot pass or a hand pass.

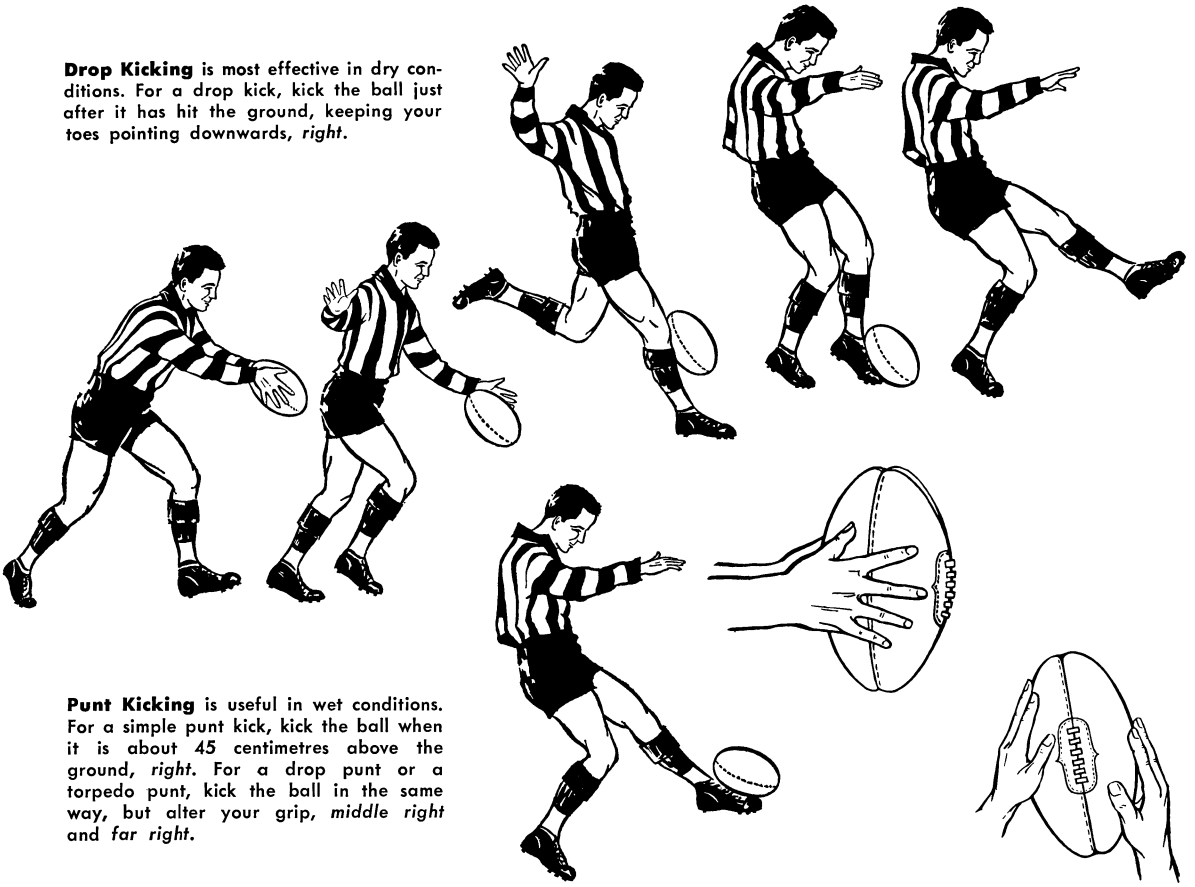
The Play. The forwards try to move into positions that allow the player with the ball to pass to them without giving the defenders a chance to intercept it. The defenders try to keep as close as possible to the forwards they are marking in order to stop the pass and the attacking movements. Each player has to think for himself. The man with the ball must quickly notice which of his team-mates is in a good position, and pass the ball to him. This player tries to kick for goal or passes the ball to another team-mate in a still better position. Often he has to pass the ball to a team-mate who is *leading*—that is, breaking away from his opponent and, at the same time, calling for the ball.

If the player receiving the ball *marks* (catches) it, or if he is fouled by an opponent, he is entitled to a *free kick*. His opponent tries to beat him to the mark, or tries to spoil the mark by knocking or punching the ball away. Even if his opponent only touches the ball, no mark is possible and the umpire calls play on. If the umpire awards him a free kick, the player either plays on, or elects to stop and have a set kick. The place where the player marks the ball is the *mark*. An opponent stands on this mark to make the kick as difficult as he can.

If the player with the ball wishes to *handball* (hand-pass) it to a team-mate, he must hold the ball in one hand and hit it with the clenched fist of the other hand. The player receiving the hand pass must play on. He tries to break away from his opponent and drive the ball forward once again. Sometimes he finds himself unopposed and runs with the ball instead of kicking it straight away. But he must bounce or touch the ball on the ground every 10 metres.

Scoring. At each end of the ground, two tall posts, called *goal posts,* are flanked by shorter posts called *behind posts*. The four posts are in a straight line, and are 6·4 metres apart. A player can score a goal only if he kicks the ball between the goal posts and it is

Drop Kicking is most effective in dry conditions. For a drop kick, kick the ball just after it has hit the ground, keeping your toes pointing downwards, *right.*



Punt Kicking is useful in wet conditions. For a simple punt kick, kick the ball when it is about 45 centimetres above the ground, *right.* For a drop punt or a torpedo punt, kick the ball in the same way, but alter your grip, *middle right* and *far right.*

not touched before it passes through the posts. He can kick a goal from any direction or distance, and the ball can bounce through the goal posts or go through higher than the posts themselves. If the ball passes between a goal post and a behind post or hits a goal post, it counts as a behind, even if the ball has been touched beforehand. If the ball hits a behind post, it is out of bounds.

Restarting Play. When a team scores a goal, the central umpire restarts the game by bouncing the ball in the centre circle. When a team scores a behind, a defender of the other team, usually the full back, kicks off from inside a rectangle drawn from the goal posts. The rectangle is 9 metres long and 6.4 metres wide. The full back can kick off in any direction he chooses, but usually kicks the ball out to one flank, making it difficult for the players of the opposing team to shoot at goal. If he goes outside the rectangle before kicking the ball, the umpire brings the ball back and bounces it on that line.

When a ball goes out of bounds, the boundary umpire signals to the central umpire. The central umpire halts play and brings the ball back to the out-of-bounds spot. The boundary umpire then restarts the game with a *throw-in,* throwing the ball high over his head between 10 and 15 metres into the field. Opposing ruckmen usually contest the throw-in and try to hit the ball down to the rover or one of their other team-mates.

Controlling Play. Five umpires control an Australian Rules football match—a central umpire who is responsible for upholding the laws of the game, two boundary umpires, and two goal umpires. The central umpire is the main referee. The boundary and goal umpires must wait for his all-clear signal before they act on their decisions.

Two timekeepers, one from each club, are responsible for keeping the playing time. They record the actual playing time on special timepieces, and rely on hand signals from the central umpire when play has been held up. Lost time varies, but is usually between 4 and 6 minutes a quarter.

Playing Good Football

A good footballer should be capable of playing in a number of positions. Often, a coach makes his players change positions in an endeavour to gain a winning break or to prevent an opposing player from dominating the game. A good footballer must be able to kick the ball well with either foot, know when and how to use any one of five kinds of kicks, and be able to place the ball accurately with both a foot pass and a hand pass. He must also be able to mark from any position, bump and tackle an opponent, avoid a tackle by twisting and weaving, and bounce the ball correctly. He must be physically fit.

The Followers are virtually a team within a team. Many experts consider that the ruck is the "power-

house" of a team. Good ruckwork often takes years to perfect. Ruckmen and rovers must develop a close understanding of each other.

A ruckman is usually a tall, strong man who is capable of leaping high, and who possesses good judgement in taking high marks or in contesting a bounce or a throw-in. A good ruckman must be able to vary the style of his play. If he does not, an opposing ruckman can quickly learn to counter him.

A rover is usually a small, fast, and clever player. He is often one of the best players in the team. A good rover must be able to pick up a ball quickly in a pack of players, weave around opponents after receiving the knock from his ruckman, and break away to put his team into attack.

Centre Line Players consist of two wingmen and a centreman. These players perform dual roles, alternating between being defenders and forwards. They have to know when to defend and when to attack. When the opposing side has the ball, they usually defend, making sure that their centre line opponents do not receive the ball. When their own side has the ball, they try to get away from their opponents to be free to receive a foot pass or a hand pass.

Centre line players are usually good kickers who can pass the ball accurately to forwards. Wingmen are usually relatively small, fast men—they may have to make long dashes for the ball. Good centre line players know how each forward likes the ball to be passed to him. They must know the manner of play of each defender, because they must receive his kicks.

Forwards try to beat their opponents either by skill or by speed, and score goals or help in scoring them. Many people consider that a forward has a more difficult task than a defender. He generally has to make a full turn when he receives the ball before he can kick it towards the goal. But a defender often has only to keep going straight on to clear the ball.

A good forward knows the kicking capabilities of all players who are going to kick to him. He watches the ball intently when it is being kicked to him. Even from 60 metres away, he can see if a pass is going to be accurate or slightly off line. He gets in front of his opponent to receive the ball, and can accurately dispose of it.

Forwards should keep strictly to their own positions, and not crowd other forward positions. If play becomes crowded in the forward lines, players have difficulty in creating opportunities for clear, unhurried shots at goal. By keeping to their positions, forwards create plenty of space in which to move and in which to use their skills.

A half forward flanker must be a specialist in his position, because he is in a spot on the field that is often by-passed. He must be patient and not crowd in on the centre half forward or the full forward.

A centre half forward is usually a mobile, high-marking player who can either make short passes to his full forward or kick goals from a long way out.

A full forward is usually the "goal getter" of a team. He must be good at kicking and marking. A good full forward is agile enough to scoop up the ball from the ground quickly, as well as to leap high for marks. He can kick goals from a long way out from set kicks, or from sharp angles with quick snap shots.

Forward pockets should keep out of the way of the full forward to give him plenty of room to lead for a possible pass. A ruckman resting in a forward pocket can move into the goal square as the full forward leads out, giving the kicker a choice between a short pass to the full forward or a long kick to the goal square. If the ball comes high, a rover resting in a forward pocket should move towards it and gather it if other players cannot do so.

Defenders try to prevent their opponents from getting a foot pass or a hand pass. They must beat their opponents to the ball, punch the ball away when their opponents leap for a mark, tackle quickly, and guard closely. They must be determined to get the ball and willing to attempt tackles that appear

FOOTBALL TERMS

Backing Up a man who has the ball, a team-mate is ready to receive the ball if the ball-carrier gets into difficulties.

Blind Turn is an evasive movement that causes the player who is behind to go one way while the player with the ball doubles back the other way.

Centre Line is an imaginary line across the field halfway between the goals. Players positioned along the line are called *centre line players*. They are left wing, centre, and right wing.

Chest Mark is a mark taken on the chest.

Crumb is a ball that drops from the hands of a player.

Finger-Tip Mark is a high mark in which a player catches and holds the ball with his finger-tips.

Fly means to leap high for the ball.

Free Kick is a penalty the umpire awards to one player when his opponent breaks the rules of the game.

Full Back Line is an imaginary line across the oval near the goals. The full back position is in the centre of this line. The back pocket positions lie on either side of the full back position.

Full Forward Line is the full back line of the opposing team. The full forward position lies in the centre of the line with the forward pocket positions on either side.

Goal-to-Goal Line is an imaginary line running between the centre of one goal and the centre of the other goal.

Half Back Line is an imaginary line across the oval approximately halfway between the centre line and the goals. Players positioned on this line are half backs. They are left back flank, centre half back, and right back flank.

Half Forward Line is the half back line of the opposing team. The half forwards are left forward flank, centre half forward, and right forward flank.

Key Position is the term for any position along the goal-to-goal line. The term applies to full forward, centre half forward, centre, centre half back, and full back.

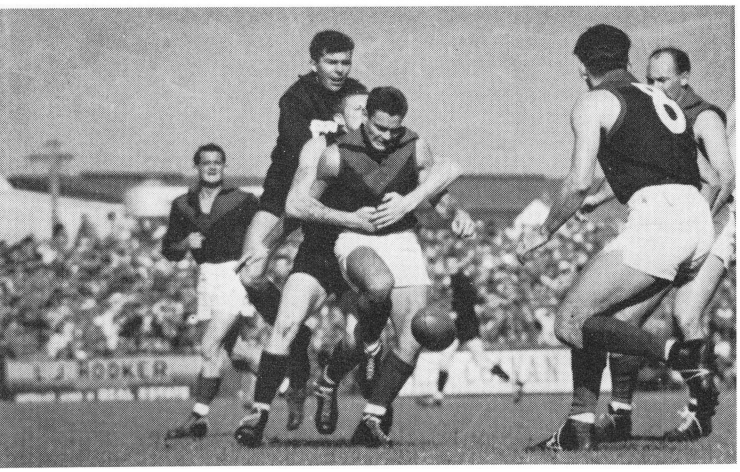
Pack is the term used for a group of players competing with each other when the ball is either on the ground or in the air.

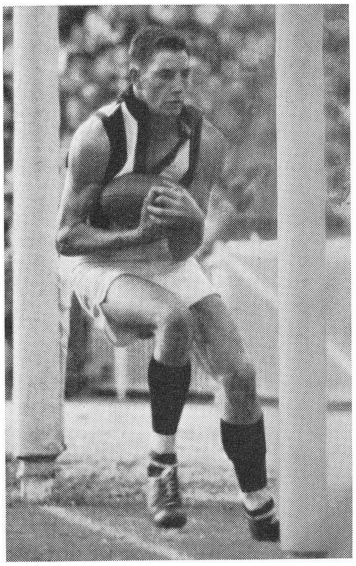
Ride occurs when a player uses the hip or shoulder of an opponent to gain extra height as he leaps for a mark.

Screamer is a spectacular high mark.

Shepherding involves protecting the team-mate who has the ball by preventing opponents from tackling him.

Shirtfront is a shoulder bump delivered to an opponent's chest.





The Age; The Herald and Weekly Times

Good Tackling, *above,* forces a player with the ball to dispose of it hurriedly, often with little effect.

Good Shepherding, *top right,* prevents opponents from forcing a team-mate to dispose of the ball too fast.

Good Marking relies mainly on concentration. A chest mark, *left,* is the safest form of mark, because a player can hug the ball into his chest. An overhead mark, *right,* enables a player to catch the ball when it is out of reach of his opponents.

hopeless. Defenders should place themselves on the inside of their opponents, forcing the opposing forwards to play near the boundary line. These tactics make accurate shooting at goal more difficult for the forwards.

Defenders must be prepared to sacrifice their own game for the sake of their team. For example, a defender might take a brilliant mark over a forward. But, if the forward outmarks him, the resulting free kick from the mark may score an easy goal for the opposing team. Most defenders try to prevent this possibility by spoiling the mark.

The full back and the two back pocket players should avoid taking risks, because errors of judgement in this area often allow opponents to score. But the centre half back and the two back flankers can often attack, as well as defend. In fact, a half back who leaves his forward and dashes out to gather the ball can send his team into attack with a good kick.

Talking between players helps to create teamwork on the field, especially in the back lines. A word from a team-mate at the right time gives a player confidence that he is doing the right thing, or warns him that an opponent is about to tackle him from behind.

Handling the Ball. Handballing is one of the major methods

of passing the ball. To *handball,* you must hold the ball firmly in one hand and hit it with your other hand. You cannot throw the ball to another player. Nor can you throw the ball up and then hit it. You can use a handball to get out of difficulties or to create an attacking movement. If you are unable to kick the ball, you may be able to handball it quickly to a team-mate. Or you may handball it to a team-mate who is in a better attacking position, even when you could kick it yourself.

Marking the ball is one of the most impressive features of Australian Rules football. One of the fundamentals of marking is to keep your eyes on the ball. Judge the flight of the ball and leap only when you consider it necessary. For an *overhead mark,* extend your arms and stretch your fingers out and slightly forward to meet the ball. Try to grasp the ball rather than let it strike your hands. For a *chest mark,* allow the ball to hit your chest rather than try to catch it with your hands. As the ball hits your chest, wrap your arms tightly around it and hug it to your body. If you are marking a ball with the wind behind it, come from behind your opponent, because the ball is likely to travel farther. If the wind is blowing against the ball, try to get in front of your opponent, because the ball is likely to drop short suddenly.

Bouncing the ball correctly takes practice. Throw the ball down straight, at an angle of about 45 degrees to the ground. You will find it hard to do at top pace, even when the ground is firm and dry. On wet ground, most players touch the ball on the ground, even though it is slower.

Kicking. A good team contains players who can pass to one another accurately and who can kick for goal with sureness. Good players know when to use a particular kind of kick.

To *drop kick* correctly, drop the ball at an angle of about 45 degrees to the ground, with the long seam of the ball in line with your target. Kick the ball just after it hits the ground, keeping your toes pointed downwards. Swing your kicking foot right through to gain distance with the kick. Keep your head down and your eyes on the ball. The drop kick is an ideal kick in good conditions, because the ball spins evenly end over end and is easy to mark.

The *stab kick* is similar to the drop kick but is used for fast passing over short distances. To stab kick, drop the ball at an angle of about 60 degrees to the ground, and closer to your body than you would for a drop kick. Kick the ball with a stabbing action just as it hits the ground. Do not follow through.

The *punt kick* is the simplest kick. It requires less balance and care than any other kick. Players use it when they have little time to be careful with their kick. But punt kicks are difficult for other players to mark, because the ball moves unevenly through the air. To punt, kick the ball when it is about 18 inches above the ground, with a good follow through.

The *torpedo punt* is a form of punt kick. When kicked well, the ball spins like a torpedo. Most players use this kick when they are kicking into a wind. To make a torpedo punt, hold the ball at an angle to your body and kick it slightly on the side of your boot.

The *drop punt* is another form of punt kick. It is so called because the ball spins end over end, as in a drop kick. But the ball travels more slowly than a drop kick and gains less distance. Drop punts are effective for passing on a wet day or for kicking when off balance. To drop punt, hold the ball almost vertically, with the long seam in line with your target. Try to kick the ball on the spot where the four seams meet.

Tackling. A player can tackle only the player who has possession of the ball. He can grasp the other player only between the shoulders and the knees. If he tackles above the shoulder, the umpire awards a free kick for "over the shoulder" or "around the neck". If he tackles below the knees, the umpire awards a free kick for "tripping". The umpire also awards a free kick to any player who is tackled when he does not have the ball. But a player with the ball may be fairly bumped by an opponent who uses his hip, shoulder, chest, arm, or hand. When the player with the ball is tackled, he must kick the ball, handball it, or at least try to do either. He cannot hold or just drop the ball.

A player may also *shepherd* a team-mate who has the ball by keeping opposing players away from him. He may push or shoulder an opponent in the chest or side, provided that the opponent is within 5 metres of the ball. A player usually shepherds a team-mate by extending his arms between him and the opponent. But he must not hold the opponent back, nor keep him from leaping for a mark or a throw-in.

Penalties. The central umpire usually awards free kicks against players for illegal tackling, holding a player who does not have possession of the ball, handballing incorrectly, wasting time, and holding or dropping the ball when held. The umpire also awards a free kick against a player who interferes with a player who is going for a mark or a throw-in.

Sometimes, the umpire must bounce the ball, as in restarting play. For example, if a player tackles the man who has the ball and holds the ball onto him, then the umpire must bounce the ball. Other incidents of this sort occur when two players mark the ball at the same time or when a pack of players keep the ball from being played freely.

Organization of Football

Australian Rules football is played mainly in South Australia, Tasmania, Victoria, and Western Australia. But the game is also gaining popularity in the other states and in the Australian Capital Territory. Experts estimate that about 100,000 enthusiasts play in competitions throughout Australia, not counting school competitions.

Junior football teams, entirely amateur and organized by adults, are among the major reasons for the popularity of the game. Local teams in every suburb, small town, and city play in competitions for boys under the ages of 12, 14, 16, and 18, and in open-age competitions. Usually, 8 to 12 of these clubs in an area band together to play each other. Many young players of ability progress through each grade until they become full members of a senior team. Local

competitions are strictly amateur. Many clubs employ part-time playing or non-playing coaches.

Each state has a major competition in its capital city. Players are paid for playing in this major league. But there are no full-time professional players in Australian Rules football. They all follow their own careers, and for them football is only a part-time occupation.

Associations. The Australian Football Council is the controlling body of Australian Rules football throughout Australia. It has headquarters in Melbourne. The council is responsible for advancing the game throughout the country and for making changes and additions to the existing laws. In addition, each state has its own controlling body. These are the Victorian Football League, the Victorian Football Association, the South Australian National Football League, the Western Australian National Football League, the Tasmanian National Football League, the Queensland National Football League, the New South Wales National Football League, and the Canberra Football League.

Every football club is affiliated to the controlling body in its state. In Victoria, South Australia, Western Australia, and Tasmania, officials from the major league clubs personally represent their clubs at the meetings of the controlling bodies. The major league clubs are:

Victoria. Carlton, Collingwood, Essendon, Fitzroy, Footscray, Geelong, Hawthorn, Melbourne, North Melbourne, Richmond, St. Kilda, and South Melbourne.

South Australia. Central Districts, Glenelg, North Adelaide, Norwood, Port Adelaide, South Adelaide, Sturt, West Adelaide, West Torrens, and Woodville.

Western Australia. Claremont, East Fremantle, East Perth, Perth, South Fremantle, Subiaco, Swan District, and West Perth.

Tasmania. Clarence, Glenorchy, Hobart, New Norfolk, North Hobart, and Sandy Bay.

Interstate Competitions. Representative teams from the major league clubs of Victoria, South Australia, Western Australia, and Tasmania play against each other every year. Canberra, Queensland, and New South Wales arrange competitions among themselves. Northern Queensland plays teams from Papua New Guinea regularly.

Each year, amateur clubs from Victoria, South Australia, Western Australia, and Tasmania stage an interstate carnival. Officials choose an Australian Amateur team from the 20 best players at this carnival. This team then competes in the "open" Australian Championships. The Australian Championships consist of two sections. In section 1, representative teams from the football leagues of Victoria, South Australia, Western Australia, and Tasmania compete against each other. In section 2, representative teams from Canberra, Queensland, New South Wales, and the Australian Amateur teams compete against each other. At the end of this carnival, officials select an all-Australian team from the 20 best players.

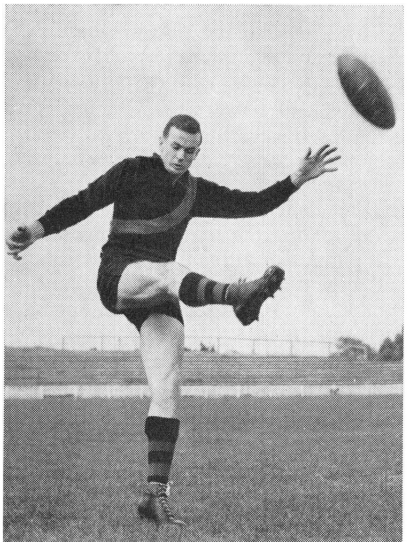
Awards for Players. In the major competitions of each state, central umpires choose the three best and fairest players in each match, and submit their names to the controlling bodies. The umpires select the best players on ability, skill, and personal behaviour during the match. They award the best players 3 points, the second best 2 points, and the third best 1 point. At the end of the season, the footballers who have been awarded the most points win "fairest and best" awards. The award for each state is:

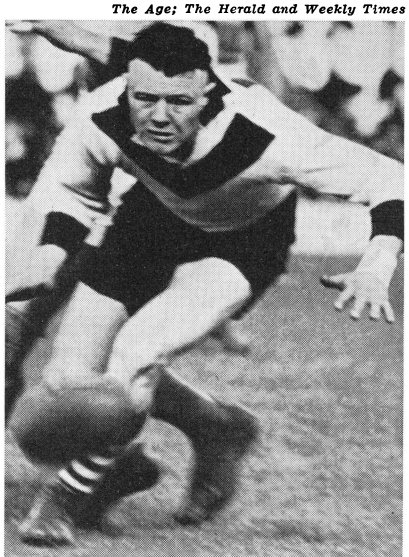
Victorian Football League	Brownlow Medal
South Australia	Magarey Medal
Western Australia	Sandover Medal
Tasmania	William Leitch Medal
Queensland	J. A. Grogan Medal
New South Wales	Phelan Medal
Canberra	Mulrooney Medal

History

Australian Rules football started in the early 1850s, when immigrants developed a game based on Gaelic football. Early games were rough-and-tumble affairs with few rules. During the late 1850s, boys from Scotch College, Melbourne, began playing with footballs that their sports master imported from Britain. In 1858, they challenged boys of Melbourne Grammar School to a football match. Each team consisted of 40 players. The two sets of goal posts were 1 mile (1·6 kilometres) apart, and the first team to score two goals won the match. After almost 5 hours of play, the only score was one goal by Scotch College. The match was abandoned. Many experts consider

The Age; The Herald and Weekly Times





Outstanding Footballers show great determination when playing the ball. John Coleman, *far left,* and Bob Pratt, *left,* were two of the finest full forwards ever to play. Both broke goal-kicking records and played for Victoria many times.

AUSTRALIAN FOOTBALL CHAMPIONS

Year	Champion	
1908	Victoria	
1911	South Australia	
1914	Victoria	
1921	Western Australia	
1924	Victoria	
1927	Victoria	
1930	Victoria	
1933	Victoria	
1937	Victoria	
1947	Victoria	
	Section 1	**Section 2**
1950	Victorian League	Australian Amateurs
1953	Victorian League	
1954		Australian Amateurs
1956	Victorian League	
1958	Victorian League	Australian Amateurs
1960		Victorian Football Association
1961	Western Australia	
1965		Australian Amateurs
1966	Victorian League	
1968		Australian Amateurs
1969	Victorian League	
1971		Canberra
1972	Victorian League	Australian Amateurs

that this match was the first game of Australian Rules football.

In 1859, H. C. A. Harrison and Tom Wills drew up the first set of rules for the Melbourne Football Club. But the rules did not provide for umpires. During the games that followed, captains had to claim free kicks from the opposing captains. Officials appointed the first umpire in 1872.

In both Victoria and South Australia, inter-club competitions became popular and well organized. Enthusiasts formed new clubs. In 1877, matches between colonies began when two Melbourne clubs visited Adelaide to play against the local teams. In the same year, Melbourne clubs formed the Victorian Football Association. Soon there were too many clubs for the one competition in Victoria. The association formed two competitions—one for clubs in inner Melbourne, the other for clubs in outer Melbourne. In 1896, the inner clubs formed their own association. They called it the Victorian Football League. During this time, clubs in other parts of Australia formed football associations. In 1877, four Adelaide clubs formed the South Australian Football Association. In 1885, four Perth clubs associated themselves in the Western Australia Football Association. In Tasmania, three clubs formed the Tasmanian Football Association in 1906. The Australian National Football Council also came into being in 1906, after an interstate conference. In 1908, the council held the first Australian Football Championships, which Victoria won.

Famous Players

Victoria. Many experts consider that Bob Pratt and John Coleman were the two greatest full forwards in the history of the game. In 1934, Pratt kicked a record 150 goals in one season. In 1950 Coleman kicked 120 goals. He also headed the goal-kicking list four times. In the late 1960s and early 1970s, Peter Hudson thrilled thousands with his freakish goal-scoring. He made 150 in a season in 1971, the fourth year he had scored over 100 goals in successive seasons. Four players have won the Brownlow Medal three times—Haydn Bunton, Dick Reynolds, Bob Skilton, and Ian Stewart. Three of these players were rovers and the other a centreman. Ivor Warne Smith and Roy Wright have each won the medal twice. Roy Cazaly was a spectacular player. His high leaps for marks or knockouts inspired the cry "Up there Cazaly!" Other famous players from Victoria include Ron Barassi and Jack Dyer (followers), Laurie Nash (centre half forward), and Ted Whitten and Kevin Murray (utility players).

South Australia. Enthusiasts often refer to the years between 1929 and 1941 as the "Farmer era". The famous full forward Ken Farmer kicked 1,419 goals during his career, scoring more than 100 goals in each of 11 successive seasons. Dan Moriarty won three successive Magarey Medals. Bob Hank, a centreman, won two successive medals and played 224 games for his club, Torrens. Lindsay Head, a centreman and rover, won his third Magarey Medal in 1963. He was awarded the M.B.E. for his services to sport in the state. Other famous players from South Australia include Vic Richardson, who also played for Australia at cricket, and Foster Williams, a rover and coach.

Western Australia. Many people consider that "Polly" Farmer, a ruckman, was the best footballer that Western Australia has produced. He won the Sandover Medal in 1956 and 1960. Both Haydn Bunton and Mervyn McIntosh also won two Sandover Medals each. Bill Mayman, a Western Australian, played for three states in successive Australian championships—Western Australia, South Australia, and Tasmania.

Tasmania. Rex Garwood won the William Leitch Medal three times—in 1951, 1955, and 1958. Other famous players for Tasmania include Albert Collier, Max Hislop, Mal Pascoe, and Darrel Baldock.

Aids to Learning

Related Articles. See SOCCER in the main volumes and BUNTON, HAYDN; CAZALY, ROY; and COLEMAN, JOHN, in this volume.

Outline of this article is as follows:

I. **A Game of Football**
- A. The Start of a Game
- B. The Play
- C. Scoring
- D. Restarting Play
- E. Controlling Play

II. **Playing Good Football**
- A. The Followers
- B. Centre Line Players
- C. Forwards
- D. Defenders
- E. Handling the Ball
- F. Kicking
- G. Tackling
- H. Penalties

III. **Organization of Football**
- A. Associations
- B. Interstate Competitions
- C. Awards for Players

IV. **History**

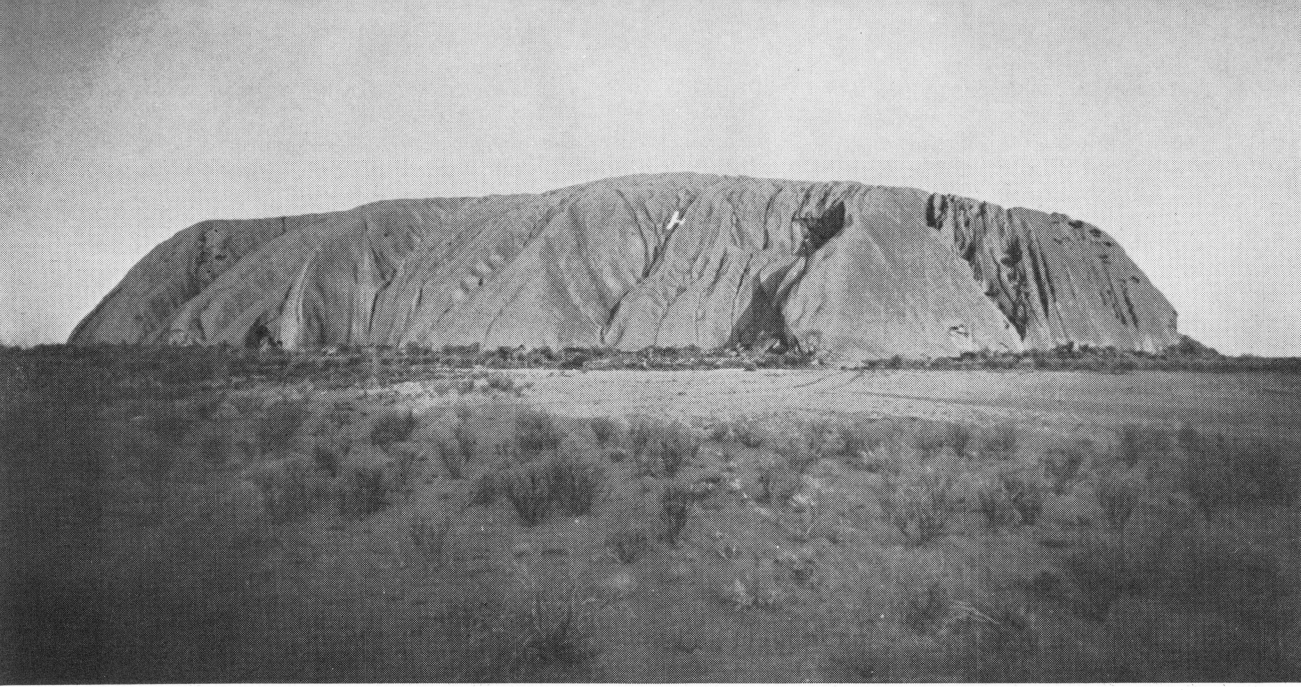
V. **Famous Players**

Books to Read about this topic include:

Craven, J., ed. *Football the Australian Way.* Lansdowne Press, 1972.

Pollard, Jack, ed. *High Mark: The Complete Book on Australian Football.* K. G. Murray, 1965.

Scott, Alan. *A Manual of Australian Football.* Lansdowne Press, 1965.



Australian National Travel Association

The Huge Mass of Ayers Rock, in central Australia, towers above the surrounding plains. Thousands of tourists visit the area each year.

AUSTRALIAN UNIVERSITIES COMMISSION is an independent body that advises the federal government on matters concerning universities. In particular, it advises the government on financial grants to universities. It also investigates courses, teaching methods, research, the ratio of staff to students, and failure rates. Since 1959, when it was established, the commission has made reports on the development of Monash University in Melbourne and on higher education in Australia. Its members are appointed by the governor-general.

AUSTRALIAN WAR MEMORIAL. See CANBERRA (Museums and Art Galleries) in this volume.

AUSTRALIND is a tract of land on the Leschenault Inlet, about 145 kilometres (90 miles) south of Perth. Australind is famous as the site of an unsuccessful settlement between 1841 and 1845. Influenced by the theories of Edward Gibbon Wakefield, businessmen in London formed the Western Australian Company and bought the land. They then sold it as farming land to intending colonists, using the money to pay for the migration of labourers. The first settlers landed in 1841. But they found the land unsuitable for farming. Most of them moved quickly to the other colonies. Within 5 years, Australind was deserted. See also WAKEFIELD, EDWARD GIBBON, in the other Australasian volume.

AUSTRALITES are small, glass-like stones found in the southern part of Australia. Early miners called them "button stones", "blackfellows' buttons", or "emu stones". Most of them are about an inch in diameter and are black or dark green. Similar stones are found in other parts of the world. Scientists call all such stones *tektites,* but are uncertain of their origin. Some believe that tektites are tiny meteorites. Others believe that they were formed by the impact of meteorites on the earth.

AUSTRALOIDS are members of the racial group consisting of the Australian Aborigines. Modern anthropologists put Australoids outside the Mongoloid and Negroid stocks. But they disagree about whether to regard Australoids as a distinct fourth stock or as connected ancestrally with the Caucasoid stock. Most Australoids have brown skin, wavy hair, broad, flat noses, heavy jaws, and full mouths. See RACES OF MAN in the main volumes; ABORIGINES in this volume.

AVIATION. See AIR TRANSPORT in this volume.

AWARDS, INDUSTRIAL. See TRADE UNIONS (Awards and Benefits) in the other Australasian volume.

AYERS ROCK is a giant outcrop of rock in the Northern Territory of Australia. It rises 335 metres (1,100 feet) abruptly from the surrounding plains, about 443 kilometres (275 miles) south-west of Alice Springs. The rock is more than 2·4 kilometres (1·5 miles) long and 1·6 kilometres (1 mile) wide, and measures 8 kilometres (5 miles) around its base. Its coarse sandstone glows during sunrise and sunset—from a deep purple to a brilliant orange. Aborigines decorated caves in the rock with paintings. The explorer Ernest Giles sighted the rock in 1872. The explorer William Gosse visited it in 1883 and named it in honour of Sir Henry Ayers, then premier of South Australia.

AYR (pop. 8,272) is the chief town in the Shire of Ayr, and a trading centre for the irrigated farming areas of Clare, Millaroo, and Dalbeg. It stands on the Burdekin River delta in one of Australia's leading sugar- and rice-producing districts. It is on the main northern highway and railway line on the central north-eastern coast of Queensland, about 80 kilometres (50 miles) south of Townsville. Ayr was surveyed in 1882 and named in 1883.

BACCHUS MARSH (pop. 4,143) is a town on the Werribee River in central southern Victoria. It is about 52 kilometres (32 miles) north-west of Melbourne on the Western Highway. It is the commercial centre of a rich agricultural district. The major secondary industries in Bacchus Marsh include processing dairy products, making hardboards, plastics, and firebrick, limeburning, quarrying slate, sand, and clay, and mining brown coal. Originally settled in 1838 by Captain W. H. Bacchus, the town was proclaimed in 1857.

BADMINTON is the national sport of Indonesia, Malaysia, and Singapore. These countries rank with Thailand and Denmark as the world's leading badminton countries. The game is also popular in Australia and New Zealand. For the rules of the game, see BADMINTON in the main volumes.

In Indonesia and Malaysia, almost every sports-minded youngster is a badminton enthusiast. Australia and New Zealand each have about 10,000 registered players, and Singapore has 5,000 competitive players. National badminton associations control the game in each of these countries. Malaya won the first world championship series for the International Badminton Federation's Thomas Cup, in 1948. It held the cup until an Indonesian team captured it in 1958. Indonesia won the cup in 1961, 1964, 1970, and 1973. Malaysia won it in 1967.

Badminton was played in Australia and New Zealand as early as 1900. The major competitions in Australia are the annual state and national championships. The major competitions in New Zealand are the national championships and the inter-provincial competition for the Wisden Cup. Australia and New Zealand compete for the Whyte Trophy.

Badminton was introduced to Malaya from India about 1920. Indonesia, Malaya, and Singapore soon produced world-class players. A Malaysian, Wong Peng Soon, was unofficial world champion from 1948 to 1955.

BAILLIEU, LORD (1889-1967), CLIVE LATHAM BAILLIEU, was one of the world's leading businessmen. He was born in Melbourne, but spent most of his life in Britain. He was a director of many major British companies and banks. He also served on many official advisory bodies, such as the Federation of British Industries and the British Institute of Management. He was educated at Melbourne and Oxford universities, and became a barrister.

BAINTON, EDGAR (1880-1956), a conductor and composer, was director of the New South Wales State Conservatorium from 1934 to 1946. He contributed much to the development of music in the state. Bainton was born in London, and attended the Royal College of Music. In 1900 he became conductor of the Newcastle Philharmonic Orchestra in Newcastle Upon Tyne, in England, and in 1912 he became principal of the Conservatoire there. He composed three symphonies, operas, choral works, chamber music, and songs.

BAIRNSDALE, (pop. 8,549) is a town on the Mitchell River in the Gippsland Lakes district of the central south-eastern coast of Victoria. The main primary industries in the surrounding districts are agriculture, cattle grazing, timber production, fishing, and dairying. The main industries are sawmilling, processing milk, and making rubber. Bairnsdale is the main town of East Gippsland, a rapidly growing holiday area. The town was proclaimed in 1861. It was proclaimed a municipal town in 1967.

BAKER, DAVID (1861-1942), was an American mining engineer and steelworks planner. He built Australia's first large-scale steelworks at Newcastle for the Broken Hill Proprietary Company Ltd. (BHP). Baker joined the BHP in 1913 as engineer-in-charge of the iron and steel development at Newcastle. Under his guidance, the new steelworks was completed in half the estimated time of five years. His policy was to train Australians for responsible positions so that a minimum of imported experts were needed. He returned to the United States in 1925.

Baker was born into a family of sailors in the Cape Cod region of the United States. After working at sea for some years, he studied at the Massachusetts Institute of Technology. He later gained an outstanding reputation throughout the American iron and steel industry.

BAKER, SNOWY (1884-1953), was one of the greatest all-round sportsmen ever produced in Australia. He excelled at 19 sports. REGINALD LESLIE BAKER was born in Sydney.

Baker was all-schools athletic champion in 1898; represented Australia against England at Rugby; and rowed in championship eights. He was a member of an undefeated Australian polo team from 1903 to 1906 and a champion diver, swimmer, fencer, and horseman. He won championships at tentpegging, tilting, jumping, and steeplechasing. He won the Australian amateur middleweight boxing championship and the 1908 Olympic Games silver medal in middleweight boxing, and also won 25 wrestling contests. He played first-grade cricket and won open surf races. He promoted and refereed boxing, then bought out Hugh D. McIntosh's holdings of Sydney Stadium and began a boxing empire in five Australian capital cities. Later he acted in films.

BAKERY HILL was the site of the Eureka stockade. Before building the stockade, rebellious gold-miners held several mass meetings on the hill in protest against the system of gold licence fees. During the first meeting on Nov. 11, 1854, they formed the Ballarat Reform League, advocating major political reform, as well as the abolition of the licences. They also elected a deputation to meet Sir Charles Hotham, the Victorian governor. The second meeting took place on November 29, when the deputation reported on its failure to influence the governor. The miners at the meeting burnt their licences. See also EUREKA STOCKADE in this volume.

Mavis Ronson; Paul Popper

Bali is world-famous for its temples and dancers. Temples, *above,* are essential for the elaborate rituals of the Bali-Hindu religion. Balinese dancers, *left,* perform in a more vigorous style than do those on the nearby island of Java.

BALI is one of the most famous and beautiful of all the islands of Indonesia. It has terraced rice fields, green mountains, and beautiful lakes. The Balinese practise a unique religon called *Bali-Hinduism.* The many statues of gods and demons have earned Bali the name *Isle of the Gods.*

The Land. Bali is bounded by the Java Sea on the north. The strait of Lombok separates it from the island of Lombok on the east. The Indian Ocean lies to the south. The narrow Bali Strait separates the island from Java on the west. For location, see INDONESIA (map) in the main volumes.

Bali is a small island. It extends 140 kilometres (87 miles) from east to west and 87 kilometres (54 miles) from north to south.

Mountains stretch from east to west in the northern part of the island. The highest mountain, Mount Agung (3,142 metres or 10,308 feet), is a volcano. It erupted in 1963 but is no longer active. Batur, another volcano, is still active. The largest lakes are Batur, Bratan, Buyan, and Tamblingan.

Rice-fields are located mainly in the south. They occupy 17 out of every 100 hectares. Dry land, coconut groves, plantations, and cultivated fields occupy nearly half of the land area. Forest reserves take up to 22 out of every 100 hectares. Valleys and government domains account for the remaining 12 out of every 100 hectares.

The rainy season lasts from October to March and the dry season is from April to September. Like the rest of Indonesia, Bali has a hot, humid climate. The average temperature of about 29°C (85°F) remains fairly constant throughout the year.

The People and their Work. Indonesia held its last census in 1961. According to this census, Bali had a population of 1,782,529. Unofficial estimates now place the population at 2,300,000. Many Balinese work as farmers. Rice is the most important crop, but coffee and copra are also of importance. Some farmers raise cows and pigs. Many Balinese work in the tourist industry or produce handicrafts.

Most Balinese are followers of the Bali-Hindu religion. Temples, shrines, and altars are found everywhere in Bali—in the mountains, valleys, plains, and beaches. The Balinese still use the numerous shrines and visit them regularly. For an explanation of Hindu beliefs, see HINDUISM in the main volumes and RELIGION IN INDONESIA (Bali-Hinduism) in the other Australasian volume.

Feasts are held when a baby is first born and when it is three days old. When it is 210 days old, a baby is given its first bath and its feet are allowed to touch the ground for the first time. Balinese celebrate their anniversaries every 210 days.

Girls undergo an important ceremony to mark adolescence. At the same time, their front teeth are filed off to defeat the six *sadripu* (demons) which Balinese believe are the enemies of all human beings. If a Balinese dies without having his teeth filed, the ceremony is performed after death.

It is a common custom in Bali for a young man to pretend to kidnap his bride. When a marriage has

FACTS IN BRIEF

Provincial Capital: Denpasar.

Area: 5,561 square kilometres (2,147 square miles).

Population: 1,782,529.

Chief Products: Coffee, copra, fruits, handicrafts, indigo, peanuts, rice, sugar, teak.

been arranged, the bridegroom dresses in traditional costume and goes to the house of his bride with his relatives. The priest then knocks three times on the door. The bride comes out, followed by her parents. The groom then returns to his own house, taking his bride with him. The marriage is then legalized according to custom and the wedding ceremony takes place.

Cremation is an important and elaborate ceremony. When possible, preparations are made several months beforehand. For the Balinese, a cremation is not an occasion for mourning. It marks the time when the soul of the dead person is liberated so that it can be reborn into better things.

Things to See and Do. Denpasar is the capital of Bali. It is the largest town and attracts the largest number of tourists. Ngurah Rai International Airport is at Tuban, not far from Denpasar. Buleleng, Benua, Gilimanuk, and Padang Bay are harbours.

Many people visit the Pura Besakih, the oldest and most sacred temple in Bali. Other important temples include the Tampaksiring sanctuary and the *Goa Gajah* (Elephant Cave), an ancient cave monastery. The 40 temples of the village of Pejeng contain many ancient relics.

The Mexican writer Miguel Covarrubias once wrote that everybody in Bali seems to be an artist. The Balinese base much of their culture on traditional art forms. Bali is famous for its sculpture and carvings of wood or baked tile. See ARTS OF INDONESIA in this volume and COVARRUBIAS, MIGUEL, in the main volumes.

Balinese dancing and music are also world famous. All ceremonies, whether they are religious services or traditional feasts, are accompanied by *gamelan* (percussion) music and dancing.

See HISTORY OF INDONESIA in this volume; MUSIC IN INDONESIA; and THEATRE in the other Australasian volume.

BALIKPAPAN (pop. 91,706) is an oil-refining centre and port in the Indonesian province of Central Kalimantan. It stands beside Balikpapan Bay, on the eastern coast of Borneo. The large oil refinery, once operated by a British company, is now run by an Indonesian government organization. It processes crude petroleum from the Kalimantan oil-fields. The harbour handles mainly crude and refined petroleum.

BALLANCE, JOHN (1839-1893), was premier of New Zealand from 1891 to 1893. He headed a Liberal party government that introduced important land and social reforms. Ballance was born in Ireland. He emigrated to New Zealand in 1866, and worked as a journalist before entering politics. He was a leading figure in provincial government in Taranaki, and became minister of customs and education in the central government in 1878. He later held various other government posts.

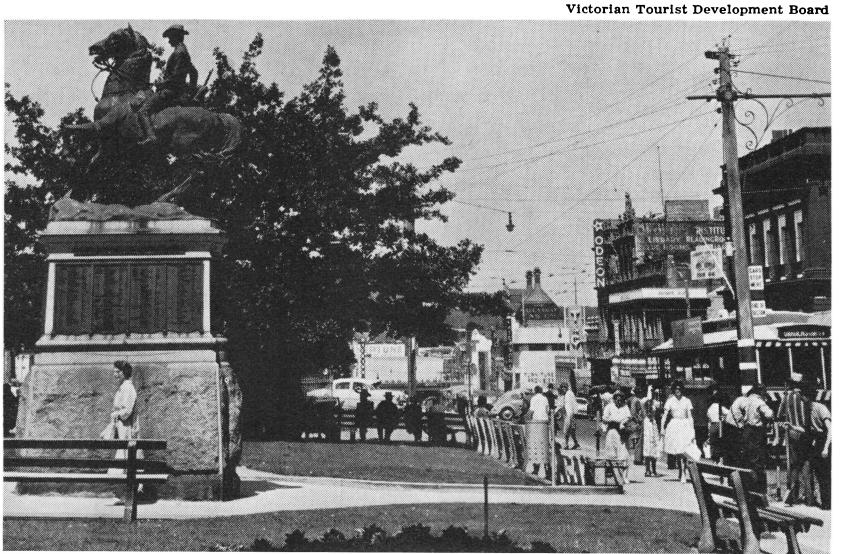
BALLARAT (pop. 58,434), the largest inland city in Victoria, lies 120 kilometres (75 miles) west of Melbourne. For location, see VICTORIA (map) in the other Australasian volume. The official spelling of the city's name is *Ballaarat*. It is an important administrative and market centre, handling the varied produce of farms in the rich surrounding region. Farmers in all parts of the state send their animals to the modern saleyards in Ballarat. It is an important railway junction, linking the rich wheatgrowing and wool-producing areas of western Victoria with the port of Geelong. It is also an industrial centre. Deposits of kaolin, building clays, and industrial sands and gravel lie nearby, and experts consider that the extensive gold deposits are still worth developing.

Gold was discovered in the district in 1851, and hopeful prospectors flocked to the site. At the height of the gold rush, more than 40,000 people lived on the Ballarat gold-fields. The most famous nugget found on the Ballarat gold-fields was the Welcome Nugget, found at Bakery Hill in 1858. It weighed 62·23 kilograms (2,195 ounces). The Eureka Stockade incident also took place at Bakery Hill (see EUREKA STOCKADE in this volume).

Ballarat has a reconstruction of part of the city as it existed at the height of the gold rush days. Known as "Sovereign Hill", it authentically reproduces Main Street, including an actually operated blacksmith's shop, a printer's, a bakery, and so on. Provision is also made for visitors to pan for gold, inspect a recreated mine working, and visit the huts and tents in which the miners lived.

BALLARAT REFORM LEAGUE. See HISTORY OF AUSTRALIA (Gold [1851-1861]) in this volume.

Victorian Tourist Development Board



Ballarat is the second biggest inland city in Australia. It grew rapidly as a result of the gold rushes to Victoria in the early 1850s.

Ballet

Brian McArdle

Yugen, **created by Robert Helpmann, is a delicate and lyrical ballet based on a charming Japanese legend.**

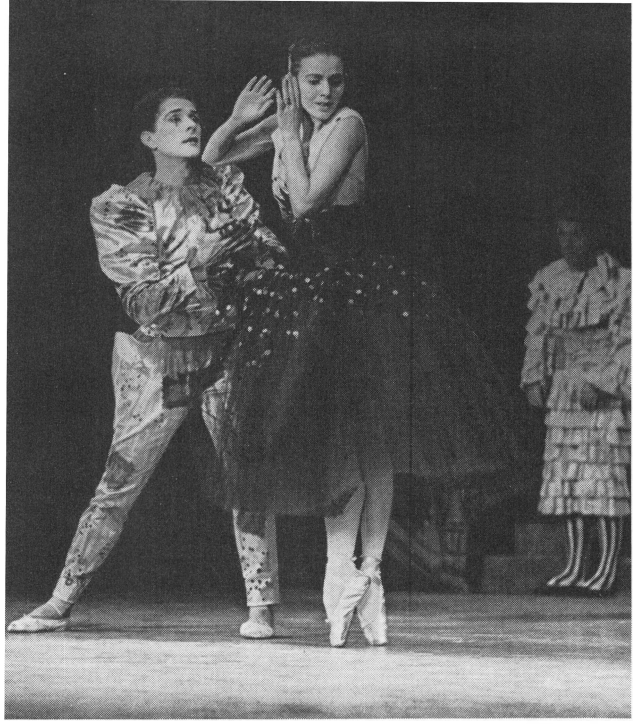
BALLET in Australia and New Zealand has been, and continues to be, nourished by visits from major overseas companies. These visits have contributed to the increasing popularity of ballet and have indirectly stimulated the development of Australian companies. Talented individuals sought to promote professional Australian ballet for many years. As a result of their efforts, a number of professional Australian companies were established during the 1960s and early 1970s. These companies were aided by increasing financial support from both federal and state governments. By the mid-1970s, they were beginning to develop a style of dancing that reflected the physical vigour and adaptability of the Australian people.

Professional Companies. The Australian Ballet has given regular seasons in all of Australia's capital cities. During the 1960s, it also undertook many tours into the widely spaced country centres of the continent. Later it committed itself increasingly to overseas tours and the responsibility for bringing ballet to country areas was taken over by smaller professional companies located in each of Australia's states. In 1965, the Australian Ballet appeared at Covent Garden as part of the Commonwealth Arts Festival and also gave performances in other parts of Europe. Margot Fonteyn and Rudolf Nureyev were so impressed with the company that they agreed to appear as guest artists during the European tour. Later overseas tours included trips to New Zealand, Canada, the West Indies, and South America in 1967. The company visited south-eastern Asia and Japan in 1968; North America in 1971; south-eastern Asia and New Guinea in 1971; and Russia, eastern Europe, and London in 1973.

The Australian Ballet has its own studios and administrative offices in Melbourne. In addition to standard classical repertoire, the company has commissioned several works from distinguished Australian and overseas choreographers. The co-director, Sir Robert Helpmann, created *The Display* with music and designs by two Australians, Malcolm Williamson and Sidney Nolan. Helpmann was also responsible for *Yugen,* a charming Japanese fairytale quite different in style from the sensationalism of *The Display.* He created *Sun Music,* with music by Peter Sculthorpe, and *Perisynthyon. Sun Music* and *Perisynthyon* were designed by an Australian, Kenneth Rowell. The Australian Ballet commissioned eight works from this designer, including *The Sleeping Beauty,* for its first season at the Sydney Opera House in 1973.

The company's former premier danseur Garth Welch contributed five works to the repertoire. In 1970, Rudolf Nureyev re-created the full length work *Don Quixote* for the Australian Ballet. Following triumphant seasons of performances in Australia and North America, the production was filmed in 1972 and later received world-wide distribution.

Ballet Schools. All the capital cities of Australia have long-established ballet schools. Most of the schools are affiliated to the Royal Academy of Dancing. Others are part of the British Ballet Organization. Some follow the Cecchetti Method or the Russian School. The Australian Ballet



Brian McArdle

The Lady and the Fool, **by John Cranko, is one of the most popular works in the Australian Ballet's repertoire.**

School, founded in 1964, is located in Melbourne. Funding is by government subsidy, as well as through scholarships donated by interested societies and individuals. Each year the school enrolls about 20 student dancers, selected by auditions held throughout Australia. Admission is subject to strict medical examination before the two-year course. Most graduates of the school join the Australian Ballet or the state companies. Some travel overseas at the conclusion of their training.

Artists. In the mid-1970s, the artistic directors of the Australian Ballet were Dame Peggy Van Praagh and Sir Robert Helpmann. The assistant artistic directors were Bryan Ashbridge and Ray Powell. John Lanchbery, previously principal conductor for the Royal Ballet, was the company's musical director. The principal dancers of the company were Lucette Aldous, Marilyn Rowe, Alan Alder, Peter Mallek, John Meehan, and Gary Norman.

History. Ballet in Australia has a history of less than 50 years. In 1926 and again in 1929, the ballerina Anna Pavlova led her company on an Australian tour. The first Australian Ballet was formed in 1929, through the collaboration of Mischa Burlakov and Louise Lightfoot. This Sydney-based group gave a performance of *Coppélia* in 1931. Helene Kirsova was prima ballerina of the Ballets Russes de Monte Carlo, which toured Australia in 1936. Kirsova was the first major figure in Australia's ballet world. She formed the country's first professional touring company, giving performances in a number of Australian states.

Gertrud Bodenwieser, an Austrian who settled in Australia in 1939, also founded a company. Modern dance development was pioneered through the Bodenwieser company and the tours it undertook through the Arts Council of Australia.

The influence of the early Russian companies was carried on by a number of dancers, including Alexis Dolinoff, Mischa Burlakov, Helene Kirsova, Raissa Kousnetzova, Edouard Borovansky, and Kira Bousloff. All of these dancers remained in Australia and became teachers. The most enduring link in this chain is the Australian Ballet School's Professor of the Dance, Leon Kellaway, who first came to Australia with Pavlova in 1926.

From 1949 to 1952, Joyce Graeme directed the National Theatre Ballet. This company presented the first full length *Swan Lake* in Australia. Its repertoire also included *Graduation Ball,* Walter Gore's *Crucifix,* and *Corroboree.* Three Australians worked in *Corroboree.* They were the composer John Antill, the choreographer Rex Reid, and the designer William Constable. A second version of *Corroboree* was choreographed by Beth Dean for the Arts Council of Australia. Edouard Borovansky continued Kirsova's pioneering work, developing his own dancers and discovering choreographers and stage designers. With the support of J. C. Williamson Theatres, he built an experienced company which, for more than 15 years, offered a wide range of classical and contemporary works throughout Australia and New Zealand. The death of Borovansky in 1959 left a void in Australia's professional ballet until the Australian Ballet Foundation was set up by the Australian Elizabethan Theatre Trust and J. C. Williamson Theatres in 1962. The Elizabethan Theatre Trust funded the Australian Ballet from government and civic council grants, from the sponsorship of business organizations, and from the theatre box office.

In New Zealand, visits of Pavlova's company and the Monte Carlo company also stimulated interest in ballet. In addition, the Covent Garden Russian Ballet toured the country. But no professional companies were formed for many years.

In the early 1950s, Paul Gnatt, formerly a solo dancer with the Royal Danish Ballet, settled in New Zealand. In 1953, he formed a ballet company of about 30 dancers. Following a successful season in Auckland, Gnatt's company toured New Zealand under the auspices of the Community Arts Service. Later, the New Zealand Ballet Company was formed. This company comprised four dancers and later grew to ten. When the distinguished former dancers Rowena Jackson, Sara Neil, and Russell Kerr returned to New Zealand, the Ballet Trust was formed, and the New Zealand Ballet Company became the New Zealand Ballet.

In the mid-1970s, despite financial problems, the New Zealand Ballet continued to present ballet productions on a modest scale. It had a cast of 15 directed by Una Kai, formerly of the New York City Ballet.

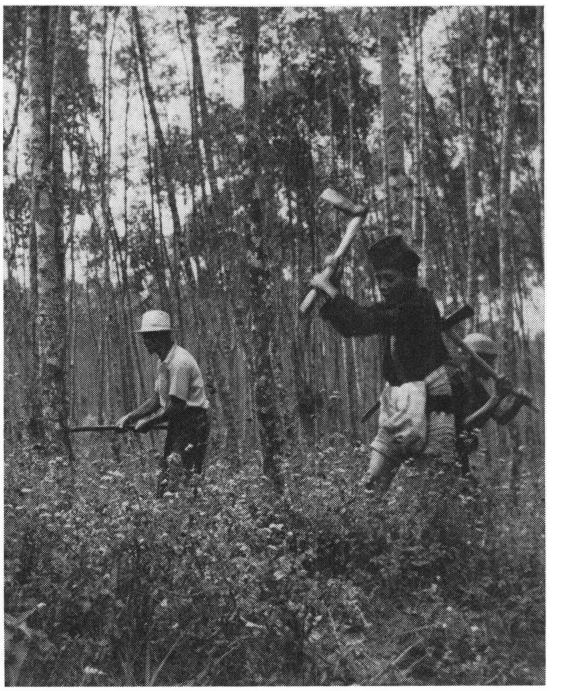
See also BALLET in the main volumes; BODENWIESER, GERTRUD; BOROVANSKY, EDOUARD; and HELPMANN, SIR ROBERT, in this volume.

BANDA ACEH (pop. 40,067), a town in the extreme north of Sumatra, is the capital of the Indonesian province of Aceh. It used to be called Kutaraja. Its people are well known for the strictness of their Islamic faith. It was one of the first places in Indonesia to adopt the religion. Banda Aceh trades in the pepper, quinine, bananas, and copra grown in the surrounding region.

BANDICOOT. See BANDICOOT in the main volumes.

BANDUNG (pop. 1,201,730), the capital of the province of West Java, is the third largest city in Indonesia. Bandung is noted for its pleasant climate and beautiful setting. It is an administrative and industrial city and a tourist resort, and was the site of the first Afro-Asian Conference, held in 1955.

Location and Description. Bandung is about 120 kilometres south-east of Jakarta. For location, see INDONESIA (colour maps) in this volume. It stands on a beautiful plateau more than 730 metres above sea level. The plateau was once the bed of a great lake, but the Citarum River drained the lake many years ago. The plateau is surrounded by high mountains, some of which are active volcanoes. Several of the peaks rise to more than 2,200 metres above sea level. Bandung's pleasant climate results from its altitude. It has an average temperature of 23° C (73° F). The average annual rainfall is about 191 centimetres.



Paul Popper

Cutting Cinchona Trees, *above,* is the first stage in the manufacture of quinine. The trees grow on estates in the Bandung region. Quinine is obtained from the bark.

Packing Quinine Tablets, *left,* girls in a Bandung factory prepare the drug for distribution. The Bandung region produces 80 per cent. of the world's quinine.

The main part of Bandung extends from east to west. Residential suburbs extend northwards on rising ground towards the mountain resort of Lembang. The city has many fine modern buildings that include hotels, government and business offices, educational institutions, and hospitals. The streets are crowded with buses, motorized three-wheeled cabs, and small horse-drawn carts called *dokars.* The main shopping centre is in and near the Jalan Braga, where many shops specialize in Indonesian art and craft goods.

Industry and Trade. Bandung lies in an area of rich estate land. Estates in the area produce 80 per cent. of the world's quinine. Other estates produce tea, sisal, tapioca, rubber, and other crops. Bandung has factories and mills that process many of these products. The city also has rice mills, and factories that make textiles, drugs and medicines, foodstuffs, and cigarettes. Padalarang, 19 kilometres to the northwest, has chemical, paper, and textile factories.

Bandung is also an administrative centre. It has the offices of various provincial government departments for West Java. The city is the headquarters of the state railway system and postal service, both of which have large workshops there. Bandung also has

offices of several state trading organizations, and of banks, insurance companies, and other kinds of businesses. The Indonesian armed forces have workshops in the city, and an ammunition factory and a plant for manufacturing, assembling, and maintaining aircraft.

Good roads and rail services link Bandung with other important cities in Java. They pass through valleys and over hills, making the approach to the city among the most beautiful in Indonesia. Bandung's Hussein Sastranegara airport is close to the city on the north-western side.

Life of the Community. Most of Bandung's inhabitants are Sundanese, the people who live in most of the southern part of West Java. They are mainly Muslims, and have their own language, Sundanese. Both Sundanese and the national language, Indonesian, are taught in the city's schools. Generally, the Sundanese are gentle in manner. They have their own folk tales, and their forms of gamelan music and traditional dancing are different from those of the peoples of Central and East Java. Many other people who live in Bandung have moved there from other parts of Indonesia because it is an educational, government, and business centre.

Educational institutions in Bandung include the Pajajaran University, which is one of the biggest universities in Indonesia; the Islamic and Roman Catholic universities; and the Bandung Technological Institute, which controls the Boscha Observatory at Lembang. This observatory is one of the best-equipped astronomical observatories in the Southern Hemisphere. The city also has institutes for research into geology, topography, and geodesy, and textiles and ceramics institutes. The Pasteur Institute produces many types of serum.

Tourist Attractions. The climate of Bandung and the opportunities for recreation in the city attract many visitors from the hot coastal regions of Java. They also attract visitors from other parts of Indonesia and from other countries. Places that are popular with visitors include the Karang Setra, a large pleasure park only a mile from the city centre; a large zoo; an international-standard swimming-pool; and a traffic playground, with roads and buildings, where children can learn traffic laws while they play with toy vehicles.

Other resorts lie close to Bandung. Lembang, to the north, has many hotels and bungalows, and opportunities for swimming, golf, tennis, and mountain walking. Maribaya, also nearby, has hot springs where people can bathe. Some people enjoy climbing the mountain peaks near Bandung. The most famous peak is the Tangkuban Perahu (about 2,060 metres above sea level). It looks like the upturned hull of a capsized ship. Other nearby peaks include Bukit Tunggul (2,247 metres), Guntur (2,283 metres), and Malabar (2,358 metres).

History. Bandung's history extends back to the A.D. 800s, when the kingdom of Pasundan had its capital at Pakuan, near present-day Bandung. Today, the residence in Bandung of the governor of West Java is named *Pakuan*. The town of Bandung was mentioned as early as 1488. It was part of the Hindu kingdom of Pajajaran, and stood on the Citarum River, 13 kilometres south of the present city. The village of Dayeuh Kolot now stands on the site. The kingdom was converted to Islam in the late 1500s. Sultan Agung of Mataram later conquered it. In 1641, he built a palace on the bank of the Citarum in the old Bandung. See AGUNG, SULTAN, in this volume.

The town was re-founded on its present site in 1811, when the post road linking East and West Java was built. Bandung had a population of more than 11,000 by 1846, and grew steadily larger. In 1864, the town became the administrative centre of the Priangan residency after an earthquake had destroyed Cianjur, the previous centre.

Soon, Dutch settlers began to develop the land around Bandung, planting estates of *cinchona* (the plant that yields quinine), tea, sisal, kapok, and other crops. In 1884, a railway line was opened linking Bandung with Jakarta, by way of Bogor. A second line, opened in 1906, linked the city with the north-coast line from Jakarta to Surabaya. In the 1930s, the government of the Dutch East Indies planned to transfer from Batavia (now Jakarta) to Bandung. By 1941, three ministries had moved.

During the Indonesian war of independence against the Dutch (1945-1950), Bandung was the centre of fierce fighting. After independence, the Indonesian government considered making Bandung the capital of the country. But, in 1959, it decided that Jakarta should be the permanent capital. Bandung gained world-wide fame in 1955, when the leaders of 29 African and Asian countries met in Bandung for the first Afro-Asian Conference.

BANDUNG CONFERENCE. See INTERNATIONAL CO-OPERATION (The Bandung Conference) in this volume.

BANGKA is an Indonesian island lying off the eastern coast of Sumatra. For location, see INDONESIA (colour maps) in this volume. The island's area is about 1,140 square kilometres. Its population is about 250,000. The main industry is tin mining. Both private companies and the Indonesian government own mines on the island. They employ many Chinese, who first went to the island about 100 years ago and now make up nearly a third of its population. Pangkalpinang is the chief town and port on Bangka.

BANJARMASIN (pop. 214,096), the largest city in the island of Borneo, is the capital of the Indonesian province of South Kalimantan. It stands on the great Barito River, not far from its mouth. For location, see INDONESIA (colour maps) in this volume.

Banjarmasin is a trade centre for central Kalimantan. Boats carry such produce as timber, rubber, and copra down the Barito to the city. Ships carry most of these products to Jakarta.

In the 1400s, Banjarmasin was part of the Hindu-Javanese empire of Majapahit. Through trade with northern Java, its people were converted to Islam about 1520. It became an important centre for the pepper trade in the early 1600s. In the 1850s, Dutch interference with the succession to the sultanate of Banjarmasin led to the Banjarmasin War.

Gert D. Wolff for WORLD BOOK

Savings Banks encourage people to be thrifty. Many children who acquire the habit of depositing savings at a bank keep up the practice when they grow up.

BANKING plays an important part in the economic life of Australia, Indonesia, Malaysia, New Zealand, and Singapore. The structure of the banking system and the range of services that banks provide vary greatly from country to country in the area. Australia and New Zealand have highly developed economies, in which banks provide a wide range of services. Many people and most industrial firms use these services, such as settling debts with cheques. Bank deposits form the greatest part of the money supply. But in Indonesia and Malaysia, only a few people make use of banking services. Many debts are paid with cash, rather than with cheques.

Kinds of Banks

The chief kinds of banks operating in Australia, Indonesia, Malaysia, New Zealand, and Singapore are central banks, trading banks, and savings banks. The banking systems of Australia and New Zealand are more highly developed than those of the other three countries. In Australia and New Zealand, other forms of banking have developed. For example, both countries have discount houses, which mobilize short-term funds for investment, mainly in government securities, and finance houses, which provide hire-purchase facilities.

Central Banks exercise a large degree of control over the banking systems of their countries. As a rule, the central bank has the sole right to issue banknotes. It keeps *reserves* of money deposited by other major banks in the country. A central bank can influence in various ways the amount of money available for investment. One way is by raising or lowering the amount of interest the banks charge for making loans or are willing to pay on money deposited with them. The central bank can also control the amount of money that trading banks hold in cash, the proportion of their assets that can be easily *liquefied* (turned into cash), and the total amount of trading bank loans.

The *Reserve Bank of Australia,* set up under the Reserve Bank Act of 1959, has its headquarters in Sydney. *Bank Indonesia,* the central bank of the country, is operated by the government and has its head offices in Jakarta. *Bank Negara Malaysia,* the country's central bank, has its headquarters in Kuala Lumpur. The *Reserve Bank of New Zealand,* created by the Reserve Bank of New Zealand Act of 1933, has its head office in Wellington.

Trading Banks, also called *commercial banks,* receive money deposits from customers and make loans to them. Customers can open *fixed-deposit accounts* at trading banks and earn interest on their deposits. They can open *cheque accounts* and make payments by drawing cheques on the bank.

Trading banks in Australia and New Zealand offer customers a wide range of facilities. They give advice to customers on investments, they buy and sell foreign currency, and they issue international letters of credit and traveller's cheques. Some even make travel arrangements for people who wish to go abroad.

The chief Australian trading banks include the Bank of New South Wales, the Commonwealth Trading Bank, the National Bank of Australia, and the A.N.Z. Bank. Overseas banks with branches in Australia include the Bank of China, the Bank of New Zealand, and the Comptoir National d'Escompte de Paris. Australia has more than 6,000 bank branches and agencies.

In Indonesia, trading banks include state banks, private banks, and overseas banks. The state banks play an important part in the economic development of the country. They include the Bank Negara Indonesia, Bank Umum Negara, Bank Dagang Negara,

and Bank Pembangunan Indonesia. In 1960, Bank Pembangunan Indonesia merged with Bank Industri Negara to perform financial services as part of a national development plan. Indonesia also has about 95 private banks. They are not as important as the state banks. The overseas banks operate mainly in import and export finance.

Malaysia has more than 40 licensed banks with about 380 banking offices. More than 20 of these are local banks. Between 1958 and 1964, deposits at trading banks, particularly in fixed and savings accounts, increased greatly.

Five trading banks operate in New Zealand: the Bank of New Zealand, the A.N.Z. Bank, the National Bank, the Bank of New South Wales, and the Commercial Bank of Australia. The New Zealand government owns the Bank of New Zealand. The other banks, except the National Bank, have their main business in Australia.

Savings Banks accept deposits and pay interest on them. They are important because they encourage people to be thrifty. Many people who save in small amounts open accounts at savings banks. The Commonwealth Savings Bank is the chief savings bank in Australia. Other savings banks include state savings banks and private savings banks. In 1965, the total deposits of the savings banks equalled those of the trading banks.

The savings bank system of New Zealand resembles that of Australia in many ways. But New Zealand's largest savings bank, the Post Office Savings bank, has deposits greater than those of the five trading banks combined. Since 1964, the trading banks have run savings bank subsidiaries. Trustee savings banks are more important in New Zealand than Australia.

In Indonesia, private savings banks are relatively unimportant. The chief savings bank is Bank Tabungan Pos, a post office savings bank. The Dutch established the bank in 1898 to serve Dutch people living in Indonesia. The bank has about 900 offices. The deposits at the various savings banks almost trebled between 1954 and 1959.

Post office savings banks are also the chief savings banks in Malaysia and Singapore.

Building and Co-operative Societies

Building and co-operative societies are not, in a strict sense, part of the banking system, but they supplement banking services. The kind of co-operative that most resembles a bank in structure is a credit union. Credit unions receive money deposits from their members and use some of their funds to make personal loans to members when they need them. A small number of credit unions operate in Australia and New Zealand. The main credit union movement is in New South Wales, where more than 200 credit unions operate. Australia has a wide range of building co-operatives that provide loans for housing. In New Zealand, co-operative building societies finance mainly mortgages on urban housing.

Indonesia has about 16,000 co-operative societies. These include co-operatives for villages, agriculture, cattle breeding, fishing, home industries, and loans and savings. Village co-operatives serve a wide variety of purposes. Three out of every five co-operatives are either village or loans and savings co-operatives.

Malaysia has about 3,500 co-operatives of various kinds with more than 500,000 members. The most important co-operatives are urban thrift and credit societies, which resemble credit unions. One of the chief sources of loans for private housing in Malaysia and Singapore is the Malaya Borneo Building Society.

History

In Australia. The oldest and largest trading bank in Australia is the Bank of New South Wales, which was established in 1817. All the other private trading banks were large, well-established institutions by the time Australia became a federation in 1901. The new federal constitution gave the federal government power to take control of all banks, except state banks, from the former colonies. In 1911, the government founded the Commonwealth Bank of Australia as a government-owned trading bank. In time, this bank developed into a central bank.

In Indonesia. The Dutch established the first commercial banks in the 1800s. Most of these were branches of large Dutch commercial banks and trading organizations with head offices in The Netherlands. Later, British, Chinese, and Japanese banks were established.

The Dutch banks conducted the largest part of the banking business. They also owned estates and mining ventures. The banks owned and operated by Indonesians were slower in developing, partly because charging interest was contrary to the beliefs of many Muslims.

In 1953, the Indonesian government nationalized the Java Bank, renamed it Bank Indonesia, and made it the central bank. Later, the Indonesian government nationalized most Dutch firms, including the other banks.

In Malaysia and Singapore. For hundreds of years, Malaysia and Singapore occupied important positions on world trade routes. In the late 1800s, the currencies of these countries were in complete disorder. The currencies of Bolivia, Hong Kong, India, Japan, Mexico, Portugal, and the United States circulated freely. In 1898, the Straits Settlements government issued currency notes and made regulations in an attempt to unify the currency system. In 1906, the Straits dollar was linked to sterling and the currency became fairly stable. These reforms encouraged the growth of banking. British, Chinese, and Indian banks were established. These banks operated mainly in export and import finance. Banking developed free from statutory control until 1958.

In New Zealand. The Union Bank, later merged in the A.N.Z. Bank, established a branch in Wellington in 1840. Until 1935, New Zealand was on the sterling exchange standard. Maintaining full convertibility with sterling imposed great strains on New Zealand's economy. The government established the Reserve Bank of New Zealand partly in order to relieve these strains.

See also BANKS AND BANKING; INVESTMENT; and SAVINGS in the main volumes.

BANKS, SIR JOSEPH (1743-1820), was a British botanist who travelled with James Cook on his first voyage of exploration from 1768 to 1771. He spent £10,000 on equipment to fit out Cook's ship, the *Endeavour,* as a floating laboratory. He became fascinated with the animal and plant wonders of Australia. During the voyage, he and another botanist, Daniel C. Solander, also studied the plant life of Tahiti. They both became famous for their findings.

The Mitchell Library

Sir Joseph Banks

Some people call Banks "the father of Australia" because he repeatedly urged the British government to establish a convict settlement at Botany Bay. The government finally accepted his advice in 1786. Government ministers consulted him during the preparations for the departure of the First Fleet for Botany Bay in 1787 and during the early years of the new colony.

Banks was born in London, and was educated at Oxford University. He was president of the Royal Society for more than 40 years.

See also COOK, JAMES; CUNNINGHAM, ALLAN; and HISTORY OF AUSTRALIA in this volume.

BANKS PENINSULA is a headland on the east coast of the South Island of New Zealand. It is about 48 kilometres (30 miles) long and about 27 kilometres (17 miles) wide, and has a total area of about 1,550 square kilometres (600 square miles). Its highest point is Mt. Herbert (1,036 metres or 3,400 feet above sea level).

BANKSIAS are about 50 kinds of plants that grow in all southern states of Australia and south-eastern Queensland. One *species* (kind) also grows in Papua. Banksias range from small trees with quaint, attractively gnarled trunks to bushy shrubs. They have flowers in stiff, cone-like heads. Their woody, nut-like seed pods often remain unopened for many years. Western Australia has the largest number of species. The plant is named after the British botanist Sir Joseph Banks.

Scientific Classification. Banksias belong to the waratah family, *Proteaceae,* and make up the genus *Banksia.*

BARASSI, RON. See AUSTRALIAN RULES FOOTBALL (Famous Players) in this volume.

BARCOO is a river of the Lake Eyre river system, in Australia. It rises in the Warrego Range in central Queensland and flows north-westwards to join the Alice River near Barcaldine. It then turns south-west and becomes Cooper's Creek near Windorah (see COOPER'S CREEK in this volume).

BARITO is a great river in Kalimantan, the Indonesian part of the island of Borneo. It is about 725 kilometres (450 miles) long. River craft carry the produce of the interior downstream to the city of Banjarmasin, near its estuary.

BARK PAINTING is an art for which the Australian Aborigines are world famous. Originally, only the Aborigines of Arnhem Land made bark paintings, but the art spread. Most bark paintings portray parts of Aboriginal myths and legends of the Dreamtime. Each group of Aborigines has traditional designs. The Aborigines cut bark from gum trees, flatten it, and dry it. They grind natural ochres and charcoal, then mix them with plant juices to make their paints. They once made brushes by biting and softening the ends of twigs or strips of bark. See also ABORIGINES in this volume.

BARKER, COLLET (1786-1831), a British army captain, became an explorer in Australia. In 1828, the Colonial Office sent Barker to Raffles Bay, at the extreme north of what is now the Northern Territory, to take command of a new settlement. In 1831, Barker explored Gulf St. Vincent, in southern Australia, in his search for the mouth of the Murray River. He climbed Mt. Lofty, then led his men overland from Cape Jervis to Lake Alexandrina. While exploring the lake, he disappeared. Historians believe that he was killed by Aborigines.

BARKER, LADY (1831-1911), was an early New Zealand writer. Her best-known books, *Station Life in New Zealand* and *Station Amusements in New Zealand,* describe life on sheep farms in the South Island. Lady Barker was born in Jamaica, and was named MARY ANNE STEWART. After her first husband, Sir George Barker, died, she married Frederick Napier Broome. They both emigrated to New Zealand in 1865.

BARKLY, SIR HENRY (1815-1898), was governor of Victoria from 1856 to 1863. While in office, he helped the Victorian people to make use of responsible government, which they had gained in 1855. He was chiefly interested in constitutional law, economics, and science. But historians know him for encouraging prison reform, the development of gas and water supplies and art galleries and museums, and the exploration of the Australian continent.

BARKLY TABLELAND is a vast plateau in the Northern Territory and Queensland, in Australia. It runs parallel to the southern shore of the Gulf of Carpentaria, roughly from Daly Waters to Mount Isa. It rises to more than 300 metres (1,000 feet) near the border between the Northern Territory and Queensland. The area offers some of the best grazing land in the Northern Territory. It includes huge beef-cattle stations such as Alexandria Station. For location, see AUSTRALIA (colour maps) in this volume.

BARNES, SID (1918-1973), a colourful and controversial Australian cricketer, played in 13 test matches, including 9 against England. He was a right-handed opening batsman, a spin bowler, a wicket-keeper, and one of the best fielders in Australia. In his matches against England, he scored 846 runs, an average of 70·50 runs an innings. He established a world record for a fifth-wicket partnership of 405 runs with Don Bradman. Both batsmen scored 234 runs in the innings—the highest score in Barnes's career. He played more than 50 matches for New South Wales. He was born in Sydney and named SIDNEY GEORGE BARNES.

BAROSSA VALLEY is one of Australia's main wine-producing areas. It is actually the valley of the North Para river, but William Light named it *barossa* (hillside of roses) after a wine-growing district in Spain. The valley is about 32 kilometres (20 miles) long and 3 to 12 kilometres (2 to 7 miles) wide. It lies 56 kilometres (35 miles) east of Adelaide. Low hills rise sharply to as much as 700 metres (2,296 feet) above sea level to the east. The valley has a Mediterranean climate, with an average rainfall of more than 400 millimetres (16 inches).

Wine. The Barossa Valley is known as the *valley of the vine* because it produces 30 per cent. of Australia's wine. More than 8,500 hectares (20,000 acres) of vineyards grow on its rolling hillsides and on the alluvial floor. They are the largest concentration of non-irrigated vines in Australia.

There are 25 wineries in the valley, ranging from the giants, such as Orlando, Yalumba, and Seppelt, to small family or co-operative establishments. Each large winery has developed its own vineyards. But independent *vignerons* (wine producers) make an important contribution to the valley's fame. They own holdings of about 20 hectares (50 acres) and farm them intensively.

The People. About 14,000 people live in the valley. Large numbers live in the towns of Tanunda, Angaston, and Nuriootpa. The rest live in smaller towns and farm settlements throughout the area. Farmers produce cereal crops, vegetables, dairy products, meat, and wool. Many townspeople work in food-processing plants.

Many of the people are descended from the German settlers who first occupied the area. These people brought a strong Lutheran faith to the valley. It is represented by the many Lutheran churches in the towns. The valley was relatively isolated for many years, and the people spoke a mixture of German and English called *Barossa Deutch*. Many of the valley's towns still have a distinctive German architecture.

History. People from Prussia and Silesia settled in the valley in 1842. They had come to South Australia under the leadership of Pastor Kavel to escape religious persecution in Germany. George Fife Angas, a director of the South Australian Company, owned 11,340 hectares (28,000 acres) of land in the Barossa Valley. A deeply religious man, Angas assisted the immigrants to settle at Bethany and Langmeil. They established a series of small villages with such names as Krondorf, Kaiser Stuhl, and Gnadenfrei. The settlers began farming to provide poultry, potatoes, and wheat for themselves. They built homes and barns with clay-plugged walls and thatched roofs. They tried to make the valley as much like their homeland as possible.

A geologist, Johann Menge, first drew attention to the potential for growing vines in the valley. Johann Cramp and Samuel Hoffman planted the first vines near Jacob's Creek in 1847. Cramp produced the first Barossa wine in 1850. He was followed by Joseph Seppelt, Joseph Gilbert, and Samuel Smiths.

See also SOUTH AUSTRALIA (colour picture) in the other Australasian volume.

BARRACOUTA are long slender fish commonly found off the southern coasts of Australia. They are caught by trolling in the largest commercial fisheries, in Victoria and Tasmania. Their flesh is not of high quality for eating but tastes good when smoked. An average barracouta is about one metre (3 feet) long and weighs 7 kilograms (4 pounds). Barracouta eat small shellfish and other fish.

Scientific Classification. Barracouta belong to the family *Gempyllidae*. They are species *Leionura atun*.

BARRAMUNDI are among Australia's finest food and sport fishes. Barramundi occur north of the Mary river in Queensland and are plentiful along the northern coast of the continent as far as Western Australia. Specimens weighing more than 54 kilograms (120 pounds) have been recorded and fish of more than 27 kilograms (60 pounds) are not uncommon. Barramundi feed mainly on small fish.

Scientific Classification. Barramundi belong to the family *Latidae*. They are species *Lates calcarifer*.

BARRIER REEF. See GREAT BARRIER REEF in this volume.

BARRINGTON, GEORGE (1755-1804), was an *emancipist* (pardoned ex-convict) who gained the favour of Governor Hunter of New South Wales and became superintendent of convicts at Parramatta, and later chief constable. He falsely claimed to have written *A Voyage to Botany Bay*. He was born near Dublin, in Ireland. His real name may have been GEORGE WALDRON. He went to London, where he became a gentleman of fashion, and employed pickpockets. In 1790, he was sentenced to transportation for stealing a watch.

BARRON GORGE is a steep depression formed by the Barron river as it flows through northern Queensland from the Atherton Tableland to the sea. The gorge lies between Kuranda and Cairns. It is heavily shaded and is banked in places by thick rain forest. The Barron Falls are 16 kilometres (10 miles) from the mouth of the river and 18 kilometres (11 miles) north-west of Cairns. They drop 234·9 metres (770 feet) in a number of cascades.

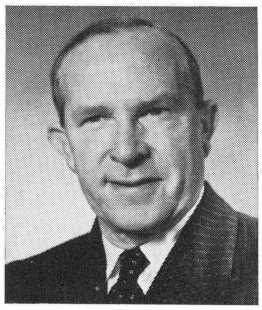
BARROW ISLAND is the site of an oilfield 97 kilometres (60 miles) off the coast of Western Australia. Its reserves are estimated at 31,800,000 kilolitres (7,000 million gallons). For location, see PETROLEUM INDUSTRY (map) in the other Australasian volume. Oil was discovered in 1964 by Wapet (Western Australian Petroleum Pty. Ltd.), a joint Anglo-Australian-American company set up in 1953. By 1969, Barrow Island was producing oil at the rate of 5,400 kilolitres (1,190,000 gallons) a day.

BARRY, SIR REDMOND (1813-1880), was the first chancellor of the University of Melbourne and the first president of the trustees of the Public Library of Victoria. He became commissioner of the Court of Requests in 1842. He worked for the separation of the Port Phillip area from New South Wales. He became chancellor of the University of Melbourne in 1853. Barry was born in Ireland, and studied law at Trinity College, Dublin. In 1839, he emigrated to Melbourne, where he practised law.

BARTON, SIR EDMUND (1849-1920), was the first prime minister of Australia, from 1901 to 1903. His government made laws on customs tariffs and defence and naval agreements with the British government.

Australian News

Sir Edmund Barton



Australian News

Sir Garfield Barwick

It restricted immigration and prohibited cane-growers from importing kanaka labourers to work on their estates (see KANAKAS in this volume).

Barton was also an important leader in the movement to unite the Australian colonies in a federation. During the 1890s, he travelled widely in New South Wales, attending rallies and making speeches to explain to the people the advantages of federation. In 1891, he became a member of the committee established to draft a federal constitution. The committee's draft constitution was not acceptable to all the Australian colonies. In 1897 and 1898, he served as chairman of a committee set up to draft another constitution. After much debate, the Australian people and the Australian colonial governments finally accepted this constitution.

In 1900, Barton and three other leading politicians travelled to London to present the constitution to the British parliament. The four held firmly to the principle that appeals to the Privy Council should be limited, and eventually reached agreement with the British government. Barton formed the first federal ministry the day before the Commonwealth was proclaimed.

Barton was born in Sydney and educated at the University of Sydney. He became a barrister in 1871, and a member of the New South Wales parliament in 1879. From 1891 to 1893, he was attorney-general of New South Wales.

See also HISTORY OF AUSTRALIA (Building the Nation [1901-1914]) in this volume.

BARWICK, SIR GARFIELD (1903-), an Australian lawyer and politician, became chief justice of the High Court of Australia in 1964. He was elected to the House of Representatives for Parramatta in 1958, and became federal attorney-general in the same year. He became minister for external affairs in 1961. He resigned from parliament to enter the High Court. Barwick was born in Sydney and educated at Fort Street High School. He studied law at the University of Sydney. He was admitted to the New South Wales bar in 1927. He became chancellor of Macquarie University in 1967.

BASEBALL is a sport played in Australia by a tremendously enthusiastic, but relatively small, group of sportsmen. It has not a great deal of public support. Baseball is not played in Indonesia, Malaysia, or New Zealand. For the rules of baseball and how to play the game, see BASEBALL in the main volumes.

Competitions are held in summer in Western Australia. But in other states they are held during the winter, because many players prefer to play cricket in the summer. Test cricketers such as Bill Johnston, Norman O'Neill, Neil Harvey, and the Archer brothers have been outstanding baseball players. Each year, five of the six states compete in the interstate baseball carnival series. This series began in 1934. The winning team holds the Claxton Shield.

Most baseball games are played in open parks before small crowds, who pay no admission charge. But national carnivals are staged in large arenas and draw large crowds. Night baseball on floodlit fields is popular in South Australia, where more than 8,000 people attend some games.

Organizers have several obstacles to overcome in trying to build up the public appeal of baseball and make it a major spectator sport. The games must be played in winter, when bad weather often discourages spectators. Also there are few suitable playing fields available because, at the end of the cricket season, the main sports grounds in most towns are used for football.

Associations in five of the six states of Australia belong to the Australian Baseball Council, which was set up in 1933, and is affiliated to the National Baseball Congress of the United States. In senior league baseball, there are more than 360 clubs with more than 760 teams and more than 12,000 registered players. In addition, there are 360 junior and school clubs with about 570 teams and 6,300 registered players.

Visiting American teams introduced baseball to Australia during the late 1800s. Since then, the game has enjoyed varying degrees of popularity.

BASIC WAGE was the minimum wage that an employer could legally pay an adult in Australia from 1907 to 1967. In 1967, the Commonwealth Conciliation and Arbitration Commission decided to abolish the concept of the basic wage plus *margins*—that is, extra payments made to skilled workers according to their particular trades. Instead, the commissioners introduced a new concept, called a *total wage*. This total wage combined the basic wage and margins. The commissioners announced that an economic review of the total wage should be made each year.

Sir Samuel Griffith, premier of Queensland from 1890 to 1893, was one of the first supporters of the doctrine of the basic wage. But the first person to apply it was Mr. Justice Higgins. When he made the *Harvester award* in 1907, he fixed £2.2*s*. as a basic wage necessary to keep a family of five people (see HISTORY OF AUSTRALIA [The "Settled Policies"] in this volume).

New Zealand had a basic wage from 1937 to 1954. The government abolished the basic wage because it was so far below actual wages in New Zealand that it served no practical purpose.

BASKETBALL is one of the leading sports in Indonesia and Malaysia. It is also growing in popularity in Australia and New Zealand. Both men and women play five-a-side basketball. But women in Australia and New Zealand also play a seven-a-side form of the game that is officially known as *netball.* For the rules of five-a-side basketball, see BASKETBALL in the main volumes. See also NETBALL in the other Australasian volume.

All the basketball players in Australia, Indonesia, Malaysia, and New Zealand are amateurs. The only professional players seen in these countries are touring teams from the United States, particularly the famous Harlem Globetrotters. Some coaches are also professionals. Indonesian and Malaysian teams are eager to engage coaches from the United States, because they regard it as the leading basketball country of the world.

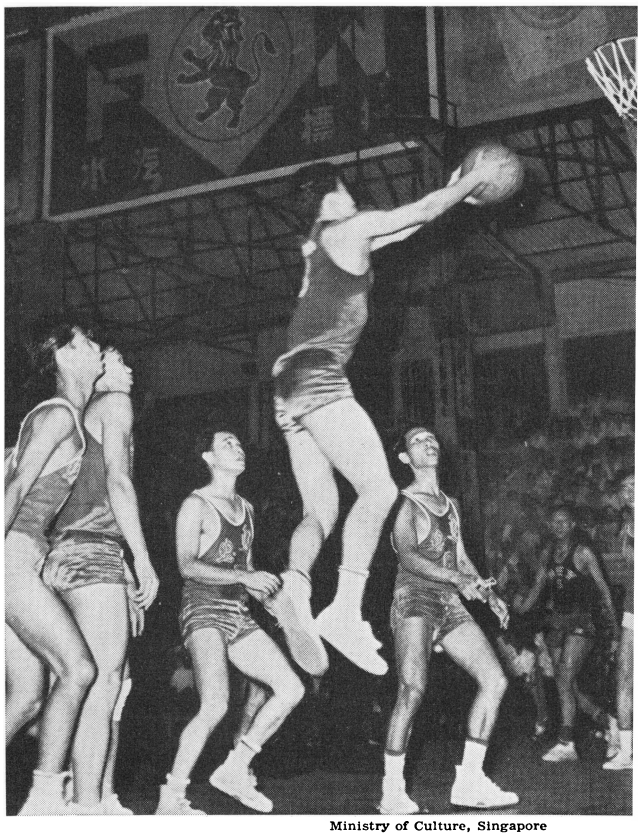
Five-a-side basketball is generally played indoors. A match lasts for 50 minutes, divided into two halves of 20 minutes each, with a 10-minute break at half-time.

The game is regarded as one of the national sports in Indonesia, Malaysia, and many other countries of Asia. It is almost as popular as association football (soccer) and badminton. Indonesia and Malaysia have national basketball associations. In Malaysia and Singapore, basketball is played mainly in schools and by the Chinese community. But each state runs a competition. For example, in Sabah, basketball players compete for the Hone Cup. In Indonesia, the main centres of the game are Bandung and Jakarta. Jakarta has a modern basketball stadium that was built as part of the sports complex for the 1962 Asian Games.

The popularity of basketball has grown remarkably in Australia, partly because of improved performances in international competitions. For example, in Victoria the numbers of registered players increased from 7,000 to 43,000 between 1956 and 1974. During the same period, the number of players in New South Wales rose from 2,500 to more than 30,000. But the sport has had the greatest success in Queensland. In 1956, basketball was almost unknown in the state. Today, more than 15,000 players enjoy the game at about 45 centres in the north of Queensland. Basketball is also growing in popularity in southern Queensland and in Tasmania. Most states have full-time administrators. In addition, several coaches from the United States have helped to raise individual and team playing standards.

Australia now has about 20,000 men's teams. New Zealand has about 3,000 teams. The Australian teams compete in national championships held each year in one of the capital cities. In the 1965 championships, carnival teams from New Zealand and Papua New Guinea competed, in addition to teams from the six states and the Northern Territory. Basketball is the only sport that brings together teams from all the Australian states and territories. Teams from the Northern Territory do not compete in any other national sporting championships.

The Australian Basketball Union, formed in 1939, controls the game in Australia. It organizes championships for teams of men, boys under 18, boys under 16, women, girls under 18, and girls under 16. The New Zealand Men's Basketball Association, formed in 1924, controls the game in New Zealand.



Ministry of Culture, Singapore

In Malaysia and Singapore, many people watch basketball competitions between the various cities and states.

Basketball became an Olympic sport in 1936. But it remained rather neglected in Australia until 20 years later. Australia entered its first basketball team in the 1956 Olympic Games, held at Melbourne, and finished 13th out of 15 teams. In the 1960 Olympic Games, held at Rome, it finished 38th. In the 1964 Olympic Games, held at Tokyo, 16 countries entered teams, including Australia, Indonesia, and Malaysia. All three were among the nine finalists who played an elimination series at Yokohama to decide who would fill the first four places. Australia failed to qualify for the 1968 Olympics in Mexico, but equalled its highest ever place in Munich by finishing 9th in 1972. New Zealand has not yet sent a team to the Olympic Games.

As a result of Australia's improved standards of play, it was invited to compete in the world championships in Uruguay in 1967, in Yugoslavia in 1971, and in Puerto Rico in 1974. Australian women's teams have competed in the world championships in Argentina (1957), Czechoslovakia (1967), and Brazil (1971). They hope to compete in Montreal in 1976, when women's basketball will be played as an Olympic sport for the first time.

BASS, GEORGE (1771-1803?), a British naval surgeon, won fame for his daring explorations along the eastern coast of Australia. In 1795 and 1796, Bass and Matthew Flinders explored the coastline south of Sydney in the tiny boat *Tom Thumb*. In 1797, Bass left Sydney in a whaleboat, and reached Western Port on the southern coast of Australia. He was convinced that a strait separated Tasmania from the mainland. In 1798, Bass and Flinders proved the existence of a strait by sailing round Tasmania. Flinders named the strait after Bass.

Bass was born at Sleaford, in Lincolnshire. He arrived in Sydney in 1795. In 1803, he disappeared while on a trading voyage from Sydney to Peru. Some historians believe that he was captured by Spaniards and forced to work in Peruvian mines.

See also AUSTRALIA (map, Physical Features and Discovery) and FLINDERS, MATTHEW, in this volume.

BASS STRAIT separates Tasmania from the Australian mainland. For location, see AUSTRALIA (colour maps) in this volume. It is about 217 kilometres (135 miles) wide at its narrowest point, and is up to 73 metres (240 feet) deep. Strong ocean currents sweep along the strait, causing rough conditions throughout most of the year. Bass Strait contains many islands, including the Furneaux and Kent groups, as well as Cape Barren, Hunter, King, Robbins, and Three Hummocks islands. The strait is named after George Bass, who sailed through it with Matthew Flinders in 1798.

BASTYAN, SIR EDRIC (1903-), a British general, became governor of Tasmania in 1968. From 1961 to 1968, he was governor of South Australia. Bastyan was born at Ferndown, in Dorset, and was educated at the Royal Military Academy, Sandhurst. During World War II, Bastyan rose from the rank of major to the rank of major-general. From 1946 to 1948, he was in charge of the administration of the British army in Germany. From 1957 to 1960, he commanded British forces in Hong Kong. He retired from the army in 1960.

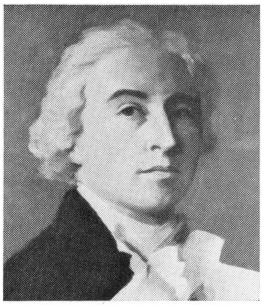
BATAKS. See MALAYS (Malay Groups) and SUMATRA (The Life of the People) in the other Australasian volume.

BATANG HARI is the longest river in the Indonesian island of Sumatra. It rises at Agam, in the Bukit Barisan, the great mountain chain that extends the length of Sumatra, and flows for about 800 kilometres (500 miles) across the great plains east of the mountains. It passes through the city of Jambi and flows into the Berhala Strait about 129 kilometres (80 miles) farther on. The river provides an important transport link for Jambi.

BATAVIA. See JAKARTA in this volume.

BATES, DAISY (1861-1951), devoted 33 years of her life to helping Australian Aborigines. The Aborigines came to know her as *Kabbarli* (grandmother). She became a leading authority on the Aboriginal people, and learnt to speak more than 180 of their dialects.

She was born in Ireland, and named DAISY MARY O'DWYER HUNT. She arrived in Sydney in 1884, and married John Bates, a farmer. In 1894, she re-



Australian News

George Bass

The Mitchell Library

Daisy Bates

turned to Britain to work as a journalist. In 1899, *The Times* newspaper of London sent her back to Australia to report on alleged cruelty to Aborigines in northern Western Australia. She reported that Aborigines suffered most hardship because other people were ignorant of their way of life. In 1912, she decided to spend the rest of her life helping the Aborigines. She lived among desert tribes in South Australia and in Western Australia. She wrote *The Passing of the Aborigines* (1938).

BATHURST (pop. 17,169) is a city in central New South Wales, about 210 kilometres (130 miles) from Sydney. It lies in rich, fertile plains on the south bank of the Macquarie River. The surrounding countryside contains some of the best pasture-land in the state. A large canning factory in the city processes the fruit and vegetable products of the area. Workers in other Bathurst factories produce precision engineering goods, footwear, clothing, furniture, flour, and cannisters for the food industry. It is an important railway centre. Bathurst has a teachers' college and the city and district are noted for their educational facilities. Bathurst was founded in 1815. In 1851, gold was discovered nearby, and the town developed rapidly. It became a municipality in 1862 and a city in 1885.

Bathurst's Modern Civic Centre stands opposite King's Parade, a tree-lined square in the centre of the town.

Noel T. Sweeney

BATHURST, EARL (1762-1834), HENRY BATHURST, was secretary for war and colonies in the British government from 1812 to 1827. Historians remember him for appointing John Thomas Bigge to inquire into the state of the colony of New South Wales, and for his ideas about the lenient treatment of convicts (see BIGGE, JOHN THOMAS, in this volume). He also did much to stabilize the economy and currency of the colony. From 1783 to 1789, he was one of the Lords of the Admiralty. He was responsible for organizing the voyage of the First Fleet to Australia.

BATHURST ISLAND lies in the Timor Sea about 72 kilometres north-west of Darwin. Apsley Strait, about 1·6 kilometres wide, separates the island from Melville Island. Bathurst Island is about 72 kilometres long by 56 kilometres wide. The whole island is an Aboriginal reserve. Bishop F. X. Gsell, a Roman Catholic missionary, founded a mission station on the eastern tip of the island in 1911. Most of the 900 people who now live on Bathurst Island are Aborigines of the Tiwi tribe.

BATIK. See BATIK in the main volumes; ARTS OF INDONESIA, MALAYSIA, AND SINGAPORE (Textile Making) in this volume.

BATMAN, JOHN (1801-1839), the "father of Melbourne", landed at the site on which Melbourne now stands in May, 1835. He noted in his diary that "this will be the place for a village". He was the leader of a party of 15 people who were disappointed with the conditions in Van Diemen's Land (now Tasmania). Batman made a land treaty with the local Aborigines. He bought about 600,000 acres of land—500,000 around the site of Melbourne, and the remainder near the site of Geelong—for blankets, knives, and tomahawks.

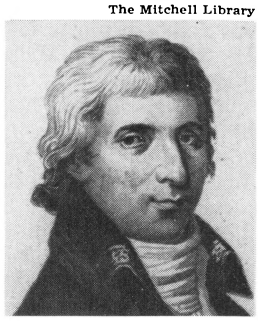
In August of the same year, another party led by John Pascoe Fawkner settled in the same area (see FAWKNER, JOHN PASCOE, in this volume). At first, the British government refused to recognize the settlement, which became known as the Port Phillip settlement. But it thrived and eventually became the colony of Victoria.

Batman was born at Parramatta. In 1821, he settled as a farmer near Ben Lomond in Van Diemen's Land. During hostilities between settlers and the Tasmanian Aborigines, he tried to pacify the Aborigines personally.

See also VICTORIA (History) in the other Australasian volume.

John Batman
The Mitchell Library

Nicolas Baudin
The Mitchell Library



BATTEN, JEAN GARDNER (1909-), a New Zealand woman pilot, made a series of record-breaking solo flights in the 1930s. She flew solo from Britain to Australia in 1934 and, in 1935, became the first woman to make the solo return flight to Britain. Also in 1935, she flew from Britain to Brazil, becoming the first woman to fly solo across the South Atlantic. In 1936, she made the first direct flight from Britain to New Zealand. On this flight, she established a new world record time from Britain to Australia—5 days 21 hours. In 1937, on her return flight from Australia to Britain, she set a world record of 5 days 18 hours 15 minutes. She was born at Rotorua.

BATTLE OF BROKEN HILL was an incident that occurred in Australia during World War I. On Jan. 1, 1915, two Turks opened fire on a train about two miles from Broken Hill, in New South Wales. Near them was an ice-cream cart flying a Turkish flag. Rifle club members and members of the local citizen military forces fired in return. Four people were killed and seven wounded, before the two Turks were shot near the Cable Hotel. The Turks were Mullah Abdulla, a butcher and camel driver, and Gool Mohamed, an ice-cream seller living in Broken Hill.

BATTYE, JAMES SYKES (1871-1954), a librarian and historian, helped to establish the University of Western Australia. He was its pro-chancellor for five years and chancellor for six.

Battye was born at Geelong, Victoria. In 1888, he became an assistant in the Melbourne Public Library. As public librarian of Western Australia from 1894 to 1954, Battye did important work in preserving and cataloging Western Australian archives.

BATU CAVES are a series of spectacular underground caverns in limestone hills near Kuala Lumpur, in Malaya. One of the caves, Temple Cave, contains a Hindu shrine. Thousands of pilgrims visit it during the festival of Thaipusam. Another cave, Dark Cave, is the haunt of bats, centipedes, snakes, and spiders.

BATUR is an active volcano on the Indonesian island of Bali. The volcano towers to a height of 1,744 metres above sea level in the eastern part of Bali. It has a crater lake about 2·4 kilometres long. The Balinese regard the mountain and lake as sacred.

BAUDIN, NICOLAS (1750?-1803), was a French navigator who explored the southern coast of the Australian mainland during 1801 and 1802. He gave the name of *Terre Napoléon* to the coastal region from Nuyts Archipelago to Bass Strait. He also gave the names of *Golfe Bonaparte* and *Golfe Josephine* to what are now Spencer Gulf and Gulf St. Vincent. But the British navigator Matthew Flinders had already mapped most of this coastline, and his place names are used today. In April, 1802, the two navigators met and held friendly conversations in a bay near the mouth of the Murray River. Flinders named this bay Encounter Bay. The South Australian Museum possesses a rock, known as Frenchman's Rock, on which Baudin inscribed the name of his ship *Géographe* during his visit to what is now Kangaroo Island, off the coast of South Australia. Baudin was born on the Île de Ré, off La Rochelle, in France.

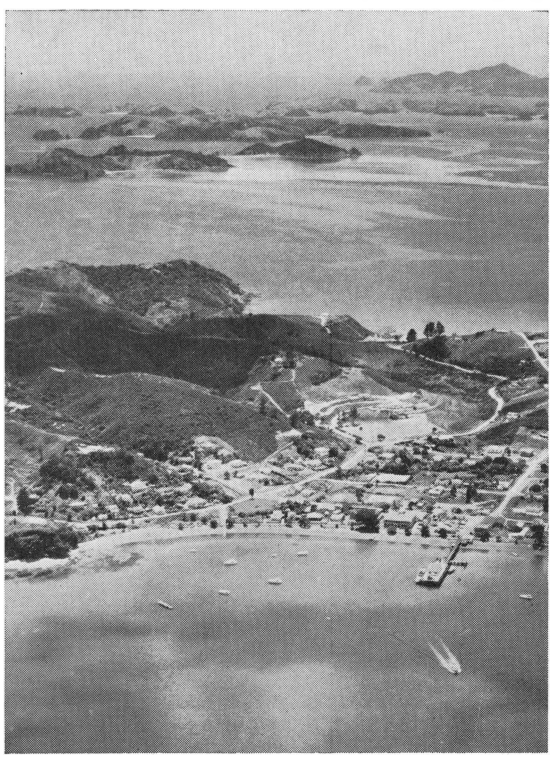
BAUGHAN, BLANCHE (1870-1958), a New Zealand writer, made clever use of New Zealand slang in her short stories and poems. Her best-known poem is "A Bush Section". She was born in Putney, now in London, and educated at Brighton High School and Royal Holloway College. She took a degree in arts at the University of London. She migrated to New Zealand in 1900. During the 1920s, she became interested in prison reform.

BAUXITE. See ALUMINIUM INDUSTRY in this volume.

BAXTER, JAMES K. (1926-1972), a New Zealand poet, became well known during the 1950s for his eloquent, lyrical poetry. His volumes of verse include *Blow Wind of Fruitfulness, The Fallen House, In Fires of No Return, Howrah Bridge,* and *Pig Island Letters.* His other works include a critical work, *The Man on the Horse;* a radio play, *Jack Winter's Dream;* and a stage play, *The Wide Open Cage.* Baxter was born at Dunedin and educated at Victoria University College in Wellington.

BAY OF ISLANDS is on the east coast of the northern tip of the North Island of New Zealand. The bay contains 149 small islands. Even the largest of these islands covers only 223 hectares. Many of the islands are privately owned. Others are Maori reserves. Four main towns lie round the bay. A railway line serves Opua, a port that handles overseas shipping. Russell, the oldest settlement in New Zealand, is a tourist resort (see RUSSELL in the other Australasian volume). Kerikeri is the centre of an area of flourishing citrus orchards.

Bay of Islands lies on the east coast of the North Island. The historic town of Russell, *foreground,* attracts tourists.
New Zealand National Publicity



Many tourists visit the Treaty House at Waitangi, where Maori chiefs signed the Treaty of Waitangi (see WAITANGI, TREATY OF, in the other Australasian volume). Tourists can take a trip on the launch that collects cream from farms around the Bay of Islands. Many fishermen go big game fishing in the bay.

BAY OF PLENTY is a large bay on the central northern coast of the North Island of New Zealand. The land bordering the bay forms the Bay of Plenty lowlands. A volcanic plateau rises from the lowlands to an average height of about 300 metres above sea level. The plateau has many thermal areas with geysers, hot springs, and boiling mud pools. The main industries of the Bay of Plenty region are dairy farming in the lowlands and tourism and softwood timber growing on the volcanic plateau. Tauranga is the main city of the Bay of Plenty region.

BAYLEBRIDGE, WILLIAM. See LITERATURE OF AUSTRALIA (Later Poets) in this volume.

BEAGLE was a British ship that carried out marine surveys in South America and along the coasts of Australia between 1826 and 1843. The famous naturalist Charles Darwin sailed on the *Beagle* from 1831 to 1836. Darwin visited Australia when the *Beagle* called at Sydney in 1836, although he travelled little in the colony. He recorded his impressions of the country in *The Voyage of the* Beagle. The *Beagle* surveyed north-western Australia in 1837. It made a survey of Bass Strait in 1838 and Torres Strait in 1839.

BEAGLEHOLE, J. C. (1901-1971), a New Zealand historian, was professor of British Commonwealth history at the Victoria University of Wellington from 1963 to 1966. His historical publications include *The Exploration of the Pacific* and *The Discovery of New Zealand* and editions of the journals of the explorer James Cook and the naturalist Sir Joseph Banks. JOHN CAWTE BEAGLEHOLE was born in Wellington. He was educated at Victoria University College, Wellington, and at the University of London.

BEAN, C. E. W. (1879-1968), an Australian historian and journalist, gained a major reputation with his work on the *Official History of Australia in the War of 1914-18,* completed in 1942. He was born at Bathurst, in New South Wales, and named CHARLES EDWIN WOODROW BEAN. He was educated at Oxford University. He became a lawyer in 1904, and a journalist in 1908. Throughout World War I, Bean was an Australian war correspondent. In 1919, he became official war historian.

BEAUREPAIRE, SIR FRANK (1891-1956), was an Australian swimmer, industrialist, and philanthropist. He was born in Melbourne and named FRANCIS JOSEPH EDMUND BEAUREPAIRE. He became a world champion swimmer, holding eight official world records for various distances. Beaurepaire represented Australia at Olympic Games in 1908, 1920, and 1924. In 1934, he established a tyre factory that grew into a multi-million-dollar business producing a variety of products from cables to tyres. Beaurepaire served as Lord Mayor of Melbourne from 1940 to 1942 and as a member of the Victorian Legislative Council from 1942 to 1952.

BEEBY, CLARENCE EDWARD (1902-), was director of education in New Zealand from 1940 to 1960. He was a member of the UNESCO executive board from 1960 to 1963, when he became its chairman. He was associated with New Zealand educational research from 1934 to 1938 and with adult education and the Workers Educational Association from 1928 to 1938. Beeby was born at Leeds, in Britain. He attended Canterbury University College at Christchurch in New Zealand, where he studied philosophy. He was the author of *The Intermediate Schools of New Zealand.*

BEEF ROADS. See CATTLE INDUSTRY in this volume.

BEES. See INSECTS in this volume.

BEETLES. See INSECTS in this volume.

BELL, SIR FRANCIS HENRY DILLON (1851-1936), a politician and lawyer, was prime minister of New Zealand for just over two weeks in 1925. He was a cabinet minister during World War I. He later twice represented the country at conferences of the League of Nations. He became a member of parliament in 1893 and minister of internal affairs and immigration in 1912. He later became attorney-general and minister of external affairs. He was born at Nelson, in the South Island.

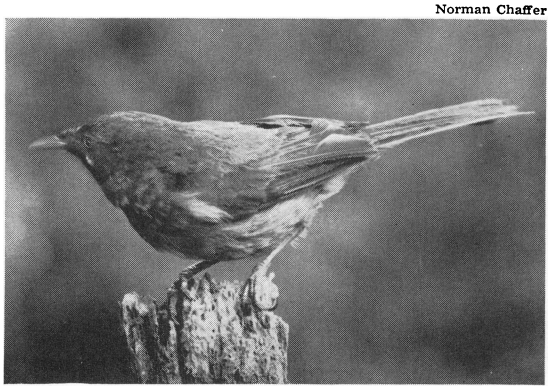
BELL BAY is on the northern coast of Tasmania near Georgetown. It lies on the estuary of the Tamar River. Bell Bay is the centre of an important alumina-refining industry. Australia's first aluminium smelter began operations at Bell Bay in 1955. The port has several deep-water wharves.

BELLBIRDS are several species of birds in Australasia. The birds are named after their calls, which sound like the tinkling of small bells. Colonies of Australian bellbirds, more correctly called *bell miners,* live in the eastern states. The birds are about 180 millimetres (7 inches) long and have yellow-green plumage and bright yellow bills. They hang upside down from tree branches to suck nectar from flowers and to catch insects from leaves. They make hanging nests of grass, twigs, and cobwebs. New Zealand bellbirds have olive-green plumage.

Scientific Classification. Bellbirds belong to the honeyeater family, *Meliphagidae.* The Australian bellbirds are genus *Manorina,* species *M. melanophrys.* The New Zealand bellbirds are genus *Anthornis,* species *A. melanura.*

A New Zealand Bellbird

Norman Chaffer



BEN LOMOND is the name of two Australian mountains, one in Tasmania, the other in New South Wales. Ben Lomond Plateau, in the north-eastern region of Tasmania, rises 1,573 metres (5,160 feet) at Legge's Tor. It is the second highest peak in the state. In New South Wales, the mountain is the highest peak in the New England Ranges. It rises to 1,520 metres (4,987 feet) between Armidale and Glen Innes.

BENALLA (pop. 8,233) is a city in north-eastern Victoria, situated on the Broken River. It is located at the junction of the Hume and Midland highways, 193 kilometres (120 miles) from Melbourne. Farmers in the surrounding district raise sheep and cattle and grow wheat, oats, flax, barley, and potatoes. The city has a chain factory, spinning mill, concrete works, and timber mills. The explorer Thomas Mitchell crossed the Broken River near the present site of Benalla in 1836. The plan for the town was approved in 1848. Benalla became a city in 1965.

BENAUD, RICHIE (1930-), captained the Australian cricket team in 27 test matches before he retired from representative cricket in 1963. He scored more than 2,000 runs in test matches. He holds the Australian record for the most wickets taken in test matches. He took 248 wickets at an average of 27·06 runs each. While he was captain, Australia remained unbeaten in any test series. His highest test score was 122 against South Africa in Johannesburg in 1952. His best bowling was 7 for 22 against India in Madras in 1957. During 1960 and 1961, Benaud led Australia to victory in an exciting series against the West Indies. He was born at Penrith, in New South Wales.

BENDIGO (pop. 45,860) is a city in northern Victoria, situated about 161 kilometres (100 miles) north-west of Melbourne. It was once an important gold-mining centre. Today, agriculture, commerce, and industry are more important to the city than mining. In the surrounding countryside, farmers raise cattle and sheep, and grow fruit and vegetables. Bendigo has large saleyards for the sheep, cattle, and pigs, as well as markets for the produce. Various factories in the city process meat, and produce bricks, tiles, pottery, and wool textiles. The city has two cathedrals, an art gallery, and many fine public buildings.

During the gold rushes in Victoria, Bendigo was one of the largest gold-mining centres. When alluvial gold became exhausted, miners discovered that the area was rich in quartz reefs. Experts estimate that the miners extracted about 623,689 kilograms (22 million ounces) of gold from the gold-fields between 1851 and 1949. The settlement at Bendigo flourished. The town became a municipality in 1855 and a city in 1871.

BENGKULU (pop. 25,330) is an administrative and commercial centre standing on the western coast of South Sumatra. For location, see INDONESIA (colour maps) in this volume. It is sometimes called *Bangkahulu* or, in English, *Bengkulen.* Its port handles the produce of the region.

BENJAMIN, ARTHUR (1893-1960), was one of the first Australians to gain an international reputation as a composer. He was born in Sydney, and educated in Brisbane. Later, he studied and taught at the Royal College of Music, in London. As an examiner for the college, he visited many parts of the world, including the West Indies, where he was greatly influenced by the melodies and rhythms of local music. His light orchestral piece *Jamaican Rhumba* and his *Overture to an Italian Comedy* gained great popularity.

BENNELONG (1763?-1813), an Aborigine, became a favourite of Arthur Phillip, the first governor of New South Wales. He was a member of the Cadigal tribe, which inhabited the area on which Sydney now stands. Phillip hoped that he could quickly educate the whole tribe if he could show at least a few of them the European way of life. He hoped that these few would then become ambassadors of good will to their people. He ordered his troops to capture several Aborigines. The soldiers returned with three young men—Bennelong, Aranaboo, and Colbee.

Bennelong soon adjusted himself to European social customs. Aranaboo died of smallpox, and Colbee escaped. Bennelong also escaped, in May, 1790. But he remained friendly with the settlers. Towards the end of 1790, some settlers built him a small house on what is now Bennelong Point, in Sydney Harbour. In 1792, he went to Britain with Phillip and with Yemmerrawanine, another Aborigine. He returned to Australia with John Hunter in 1795 (see HUNTER, JOHN, in this volume). Bennelong died from wounds received in a tribal fight near Sydney.

BENNETT, CHARLES MOIHI (1913-), a prominent Maori diplomat, soldier, and civil servant, was the first Maori to become a senior diplomat. In 1958, the New Zealand government appointed him as its high commissioner in Malaya. He described this appointment as an indication of the excellent relationship between Maoris and Europeans in New Zealand. Bennett joined the army as a private when World War II began. He later commanded the Maori Battalion. In 1963, he became assistant secretary of the Maori Affairs Department. He was born at Rotorua, and was the first Maori to attend Oxford University.

BENNETT, DONALD (1910-), an Australian pilot, became an air vice-marshal in the Royal Air Force in 1944. At that time, he was the youngest R.A.F. officer to hold this rank. He was born at Toowoomba, in Queensland, and named DONALD CLIFFORD TYNDALL BENNETT. He was educated at Brisbane Grammar School. In 1938, he made a record crossing of the Atlantic Ocean. He also made the first non-stop flights from Britain to South Africa and from Britain to Canada. During World War II, he became area officer commanding the Pathfinder Force of the Royal Air Force Bomber Command. Later, he became chairman and managing director of aerial charter and motor-manufacturing companies.

BENNETT, GORDON (1887-1962), an Australian Army officer, commanded the Eighth Division when Japanese invaders trapped it in Malaya during World War II. Bennett handed over his command on Feb. 15, 1942, the same day that British forces in Malaya surrendered to the Japanese. He escaped from Singapore and returned to Australia on Feb. 27, 1942. A military court of inquiry found that Bennett was not justified in handing over his command or in leaving Singapore. He resigned from the service. He was born in Melbourne and named HENRY GORDON BENNETT. He served with Australian forces during World War I.

BENTLEY, DICK (1907-), an Australian comedian, appeared in most of the principal theatres in Australia and Britain. Radio listeners know Bentley for his portrayal of the doleful Ron Glum in the British Broadcasting Corporation's comedy series *Take It From Here*. Bentley also appeared in American and British films as a character actor. He was born in Melbourne, and named CHARLES WALTER BENTLEY. He settled in London.

BERNBOROUGH was one of Australia's greatest racehorses. In 1945 and 1946, he ran in 18 races and won 15 times in a row. Bernborough often made a spectacular win after getting into difficulties earlier in his races. In 1946, he displaced a bone in his left foreleg at Flemington, in Melbourne. The film producer Louis B. Mayer bought the horse for about $US 250,000 for stud.

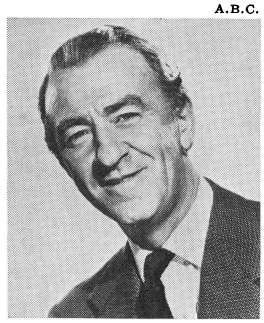
BERNICKE, AUSTIN (1908-), became health and education minister of Nauru after that country achieved its independence in 1968. He was educated at Queen's College, Melbourne, and studied bacteriology at Melbourne University. He was elected to the Nauru Legislative Council in 1966.

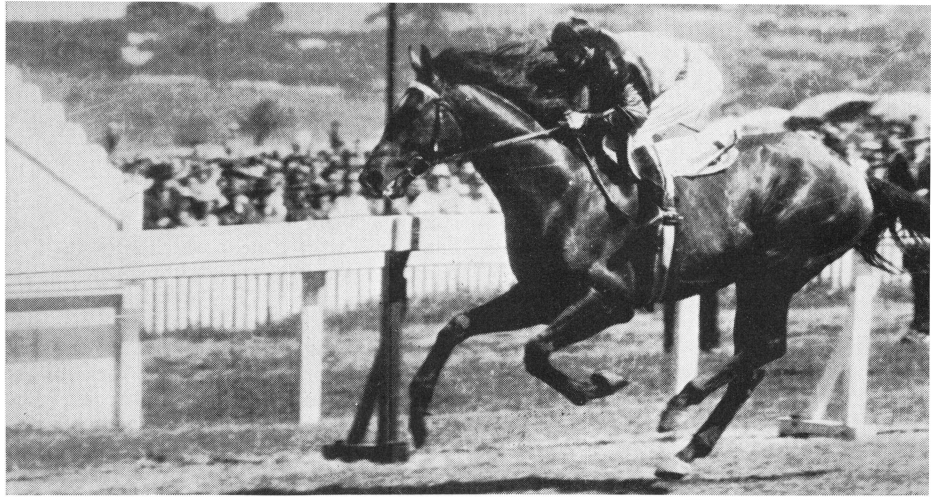
Arthur Benjamin
A.B.C.

Bennelong
The Mitchell Library

Charles Bennett
The New Zealand Herald

Dick Bentley
A.B.C.





Bernborough, one of Australia's greatest racehorses, won 15 important races in a row and lost only 3 out of 18 races in 1945 and 1946.

The Sydney Morning Herald

BERRI (pop. 5,166) is a town in South Australia. It lies on the Murray River, about 241 kilometres (150 miles) north-east of Adelaide. Berri is in the centre of a rich irrigation area that covers more than 100 square kilometres (40 square miles). Orchards and vineyards cover the spacious river flats. The area is one of the major centres of wine production in Australia. Farmers in the district manage a large co-operative winery, as well as co-operative fruit-packing sheds. In addition, the town contains the largest distillery in the Southern Hemisphere. A cannery in the town also gives employment to many local people. The area was first settled in 1910. In 1922, Berri officially became a district council.

BERRIMA (pop. 596) is a town in New South Wales. It lies on the Hume Highway south-west of Sydney. Farmers near the town graze cattle and grow crops. A company at Berrima uses limestone from the surrounding district to make cement.

The town has important historical associations. The surveyor-general Sir Thomas Mitchell suggested the site for the town in 1830. Governor Darling approved the plan of the town drawn by the surveyor Robert Hoddle in 1831. The Surveyor-General Inn was built in 1834. It was not the first inn at Berrima, but it has become the oldest inn still licensed in Australia. The Berrima jail was begun in 1834 and completed in 1839. Governor Bourke laid the foundation stone of the court house in 1835. The building was completed in 1838. Berrima was officially proclaimed a town in 1880.

BETHUNE, ANGUS (1908-), was premier of Tasmania from 1969 to 1972. He became a Liberal Party representative in the House of Assembly in 1946 and leader of the opposition in 1960. After the 1969 election, the Liberals had 17 seats, Labor had 17, and Kevin Lyons of the Centre Party had one. Lyons became deputy premier in Bethune's government. WALTER ANGUS BETHUNE, a descendant of a pioneer Tasmanian settler and merchant, was born at Sheffield, in northern Tasmania. He was educated at Launceston and the Hutchins school, Hobart, and became a pastoralist. He was an RAAF air crew member during World World II.

BEYNON, RICHARD (1928-), an Australian actor, producer, and playwright, gained third place out of 2,000 entries with his play *The Shifting Heart* in a competition held by the British newspaper *The Observer* in 1956. Beynon was born in Melbourne.

BIBBY, LIONEL (1892-1967), an Australian marksman and exhibition shooter, performed amazing feats with pistols, rifles, and shotguns. He could split playing-cards with shots fired through the edges of the cards. He could flip a spent cartridge in the air from a pistol and hit it in the air with the following shot. The feats of the American markswoman Annie Oakley and the American marksman Buffalo Bill inspired Bibby. He rehearsed his repertoire of trick shots for hours on remote Sydney sandhills. In 1944, he became a firearms expert for a large sports firm. He was born at Glen Iris, in Victoria.

BIG BROTHER MOVEMENT is an organization that assists British boys to settle in Australia. Members of the movement, called *big brothers,* help and advise the boys, called *little brothers,* when they arrive in Australia. At first, the movement provided assistance only for boys who wanted to work on farms. Today, the movement also assists boys who want to work in cities. The movement has brought over 7,000 boys to Australia since it was formed in 1925.

BIGGE, JOHN THOMAS (1780-1843), was appointed commissioner to inquire into the affairs of New South Wales in 1819. The British government appointed him after it had received complaints about the colony's administration and finances. Bigge quarrelled with Lachlan Macquarie, the governor, over the status and rights of *emancipists* (pardoned ex-convicts). In his report, he recommended that they should have rights but should not be allowed to hold responsible positions. He also recommended that New South Wales should produce only wool, and should discourage manufacturing industries.

Bigge landed in Sydney on Sept. 26, 1819. Between 1819 and 1821, he toured New South Wales and Van Diemen's Land (now Tasmania). He soon became friendly with the *exclusives* (wealthy free settlers). The British government accepted most of his proposals, and Macquarie resigned soon afterwards.

Bigge was born in Northumberland, in England. He became a barrister in 1806. He was chief justice of Trinidad, in the West Indies, from 1815 to 1818.

BIKINI ATOLL. See BIKINI ATOLL in the main volumes.

BILLABONG is a pool or small lake. People also use the term to describe an incomplete stream that flows out from another stream, but does not return to it. Billabongs occur mainly in areas in which hot, dry seasons follow recurring floods. The overflow of the flood may escape into a billabong, where it eventually dries up. Or the river, at full flood, may flow straight across a neck of land formed by a curve in the river, leaving a curved billabong. *Billabong* is an Aboriginal word meaning *dead river.* The word occurs often in Australian writing, particularly in songs and ballads.

BILLIARDS is played as both a professional and an amateur game in Australia and New Zealand, and as an amateur game in Malaysia and Singapore. Australia's best-known professional billiards players include Walter Lindrum, who was world champion from 1934 to 1950. He held 57 world records. Australia's world-ranking amateurs include Tom Cleary from Melbourne and Robert Marshall from Perth. Both players made world-record breaks for amateurs. The Australian Amateur Billiards Association holds national championships. Organizations affiliated to the association control competitions in each of the Australian states.

New Zealand held its first championships in 1908. In 1964, the New Zealand National Billiards Control Council staged world championships at Pukekohe, near Auckland. Lance Napper from Otago won the New Zealand championship in 1965.

See also BILLIARDS in the main volumes; LINDRUM, WALTER, in this volume.

BILLY is a can varying in capacity from about half a pint to a gallon. The can has a handle, from which it can be suspended on a hook, and a lid. It is used for cooking over an open fire. Tea made in a billy should be made strong. The billy should be banged on the side or swung overhead to allow the tea leaves to settle. Experts believe that the term *billy* may have come from the Aboriginal word *billa,* which means creek or river. Later, the term was applied to water and to water containers.

BILOELA (pop. 4,022) is a town in the Fitzroy basin in Queensland. It lies 144 kilometres (90 miles) from Rockhampton. It is the main town for the cotton-producing area of the Dawson-Callide valley. Farmers in the district also grow wheat, sorghum, maize, and linseed. A meatworks in the town serves the Dawson Valley's cattle industry. Many people in the town work at the Callide open-cut mine, which supplies coal for the Cal Cap power station nearby.

BINABURRA TREES grow in Queensland rainforests. They are also called *white beech* or *grey teak.* Binaburras are tall trees, growing to 41 metres (130 feet). They are flanged at the base, and they have grey, scaly bark. Binaburra leaves are fairly thick, and are partly deciduous. The flowers are white, fairly large, and are borne in clusters. The tree's berries are blue. Binaburras produce a free-grained, strong, and virtually unshrinkable timber. The timber is useful for furniture-making, general fittings, for indoor purposes, and for wood-carving. Even though it is scarce, woodcarvers still seek it for fancy carving.

Scientific Classification. Binaburra trees belong to the plant family *Verbenaceae* and the genus *Gmelina.* They are species *G. leichhardtii.*

BINGARA (pop. 1,041) is a small town about 145 kilometres (90 miles) north-west of Tamworth in New South Wales. Bingara is one of several towns near which *chromite* (chromium iron ore) has been mined. Others include Barraga, Manilla, and Mindle. They are located along the line of outcrop called the *great serpentine belt,* which stretches in an arc from near Warialda past Tamworth to near Taree. Serpentine is a rock formed by the alteration of magnesium-rich rocks. The chromite was originally formed as layers of crystals in the serpentine as the *magma* (hot rock) cooled. Chromium is used to make stainless steel and as an electroplating metal.

BIRCHIP (pop. 1,050) is an administrative centre and service town located some 512 kilometres (320 miles) north-west of Melbourne in the southern Mallee district of Victoria. It lies on the Northwestern or Sunraysia Highway and on the Mildura railway line. The town is an important collection and distribution centre for the surrounding farming area, and has railway yards, silos, and saleyards.

BIRD, NANCY (1915-), became the youngest woman in the British Empire to obtain a commercial pilot's licence. She received the licence in 1934 at the age of 19. Nancy Bird was born at Kew, in New South Wales. She had her first flying lesson from the Australian aviator Sir Charles Kingsford Smith in 1932 at the age of 17. She obtained her A class flying licence the same year. While operating a charter service, she assisted the Far West Scheme by flying nurses and patients. During World War II, she commanded the Women's Air Training Corps.

BIRD DAY was a special day set apart by each Australian state to foster interest in bird life. It was observed by special lectures given in the schools, and by competitions for bird mimicing, sketching birds, and writing essays and poems. Bus excursions were sometimes held, taking children, especially urban children, to see birds in the field. In Victoria, Bird Day was celebrated on the last Friday in October, in Queensland on the third Friday, and in New South Wales on the last Friday in September. Today, conservationists aim to foster interest in the whole environment, including birds, and what was observed as *bird day* has become *earth day.*

BIRDCATCHING SPIDER is a large spider that lives in Indonesia and New Guinea. The females are much larger and are seen more often than the males. The females are an inch long, and have oval, grey, or purplish bodies, sometimes marked with yellow. Their strong black legs have yellow bands.

The females build irregular webs, which can be more than 3 feet in diameter. The webs are supported on strong strands, which can be more than 12 feet long. The silk is golden yellow.

The webs of sticky threads catch a variety of insects, on which the spiders feed. Occasionally, a small bird or reptile may be caught, but these animals are not the main food of the spiders.

Scientific Classification. Birdcatching spiders belong to the family *Araneidae.* They are genus *Nephila,* species *N. plumipes.*

Jeff Carter

Magpie Geese

BIRDS that live in Australia, New Guinea, and New Zealand differ markedly from those of Malaysia, Singapore, and most of Indonesia. Many *species* (kinds) of birds commonly seen on the mainland of Asia and in the western islands of Indonesia cannot be found in Australia. And many species found in Australia and New Guinea live nowhere else in the world.

This sharp division is the result of the geological development of the area. At one time, all these lands were connected. Later, New Zealand became cut off by the sea from what is now Australia. This separation must have taken place more than 70 million years ago, because it occurred before mammals had developed. But it must have occurred after the ancestors of the moas and kiwis had arrived in New Zealand, because these birds could not fly.

About a million years ago, the plants and animals of Australia and New Guinea became separated from those in the *Oriental region,* which includes the whole of south-eastern Asia. A British naturalist, Alfred Wallace, distinguished between these two groups of plants and animals by drawing an imaginary line that became known as *Wallace's Line.* The line begins at the Philippines and extends westwards and southwards through Indonesia, separating Sulawesi from Borneo and Bali from Lombok. See WALLACE'S LINE in the main volumes.

The Malaysian Subregion

Zoologists use the term *Malaysian subregion* to indicate part of the Oriental region. The subregion includes Malaysia, Singapore, and most of Indonesia. This subregion lies astride the Equator. The vegetation consists mainly of dense tropical rain forests. The main islands have high mountain ranges.

The 660 species of birds that live and breed in the Malaysian area include 22 whole *genera* (groups) that live only in this area. A further 120 species are only visitors. Important groups include the bulbuls, crows, cuckoos, drongos, finches, flower-peckers, hornbills, jays, magpies, partridges, pheasants, spider-hunters, starlings, sunbirds, swiftlets, trogons, warblers, weavers, and woodpeckers. Most of these groups do not live east of Wallace's Line, or have only a single species living east of the line.

Pelican

Peacock

Gert D. Wolff

BIRDS

Most of the shore birds are winter visitors or migrants on their way south. These birds include golden plovers, sandpipers, and snipes. Bitterns, grebes, herons, rails, and other water birds, and eagles and hawks, are similar to those in India and other parts of Asia. Some of them also live in one or all of the countries of the Australasian region.

Partridges and pheasants are important forest birds. Male *great argus pheasants* are 1·8 metres long. Their tails account for 1·2 metres of their length. The 25 species of woodpeckers range in size from *piculets,* which are 8·9 centimetres long, to *great slaty woodpeckers,* 48 centimetres long.

Java is the only place where *pygmy tits* live. These birds are 8·3 centimetres long. Their tails account for most of this length. Their upper parts are dull brownish-grey and their underparts whitish-grey.

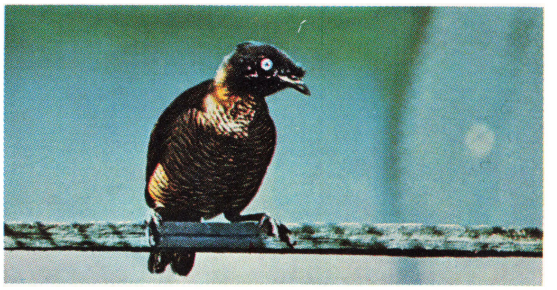
Hornbills include *helmeted hornbills,* large birds that feed on fruit, lizards, birds' eggs, and small birds. They are 130 to 150 centimetres long, including their tails, which are 71 centimetres long. They are the only hornbills with solid casques. *Casques* are horny head-coverings that resemble helmets. The large, high casques are the source of *hornbill ivory,* once more valuable than jade. For hundreds of years, the people of the area exported it to China, where it was elaborately carved.

The beautiful *hunting cissas* are light green magpies. They are often found with mixed flocks of babblers, drongos, and woodpeckers. *Crested jays* live only in Malaysia. Small parties of these birds live in forests up to 762 metres above sea level.

Mynahs include *Indian mynahs,* which have been introduced into Australia and New Zealand; *talking mynahs;* and *Rothschild's mynahs,* rare birds that live only on Bali.

Cassowary

Princess Stephanie's Bird of Paradise



The Australasian Region

Zoologists use the term *Australasian region* to describe an area that includes New Guinea, Australia, and New Zealand. Most New Guinea and Australian forest birds differ greatly from those west of Wallace's Line.

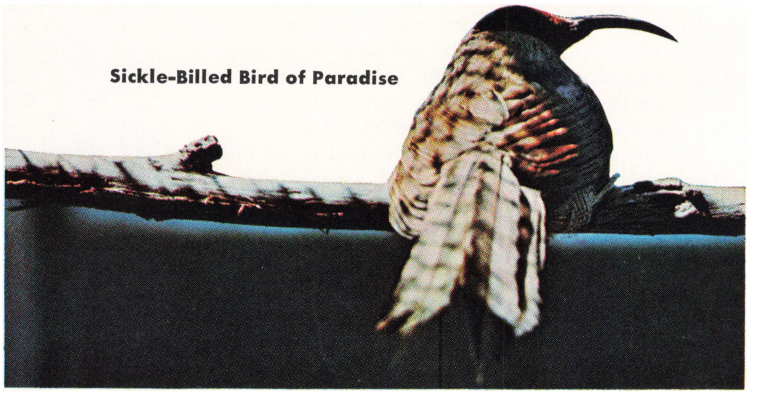
New Guinea, for its size, is one of the richest areas of bird life in the world. It has about the same number of species as Australia, which is ten times larger. It has whole groups that are not found elsewhere.

Characteristic birds include cassowaries, cockatoos, egrets, false pittas, frogmouths, goura pigeons, honey-eaters, megapodes, parrots, pittas, swifts, whistlers, and woodshrikes. A number of birds that live only in the Australasian region, including birds of paradise, bowerbirds, and catbirds, are most abundant in New Guinea.

Many species of all the three main types of bowerbirds—the platform builders, maypole builders, and avenue builders—live in New Guinea. The *black-eared* and *white-eared catbirds,* their relatives, also live there.

Many honey-eaters live in the Australasian region. New Guinea has 63 species, Australia 69, and New

Crowned Pigeon

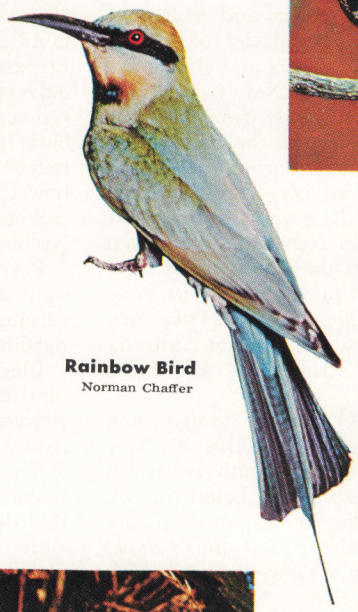


Sickle-Billed Bird of Paradise

Gert D. Wolff

Norman Chaffer

Magpie



Rainbow Bird
Norman Chaffer

Norman Chaffer

Peewee

Donald Ludgin

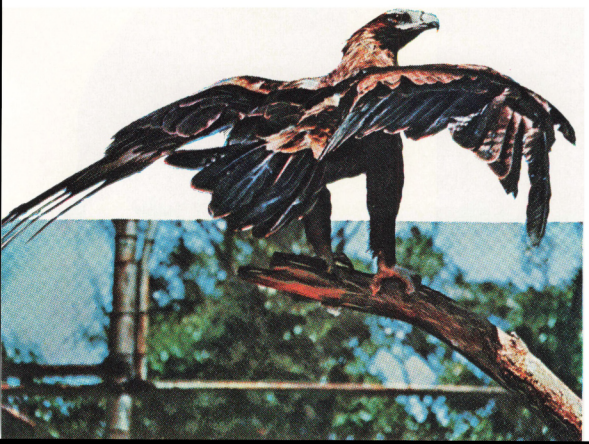
Black Swan

Norman Chaffer

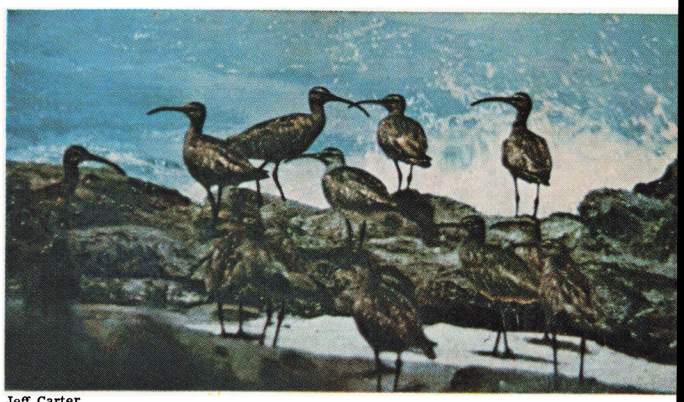
Male Blue Wren

Female Blue Wren
Norman Chaffer

Wedge-Tailed Eagle
Gert D. Wolff



Curlew



Jeff Carter

Zealand 5—3 unique to New Zealand and 2 that also live in Australia. They have brush-like tongues to collect nectar. They also eat insects and fruit.

New Guinea has one or two species of several groups that are common in Malaysia and elsewhere, but that do not live in Australia. New Guinea has four species of the true thrush family, two species of the wagtail family, one species of the true shrike subfamily, and one species of the hornbill family. In the vast, world-wide *Muscicapidae* family, which consists of insect-eating birds, several groups and species are most abundant in New Guinea or even live only there. Among birds that live only in New Guinea are *false pittas, giant fairy wrens, ifrits, New Guinea woodshrikes,* and *ploughshare shrike tits.* Groups that live in both New Guinea and Australia are babblers, quail thrushes, scrub wrens, and shrike tits.

The only cranes in New Guinea are *brolgas,* and the only storks are *jabirus.* The jabirus of New Guinea are not the same as the South American storks that have the same name (see JABIRU in vol. 7). Water birds such as ducks, herons, and rails are similar to those of Australia. But *Salvadori's ducks* live only in New Guinea. They live on high mountain lakes and pools of rivers.

Most sandpipers and other waders are visitors from the north. But woodcocks live there throughout the year. They live in wet swampy clearings in mountain forests. Woodcocks live also in Malaysia—but not in Australia.

Some of the many pigeons are of the same species as those in Australia. The unique *crowned,* or *goura, pigeons* are the largest living pigeons. They are nearly as large as turkeys.

There are 42 species of parrots, including numerous *geographical races* (local varieties). They vary in size from great black cockatoos, up to 64 centimetres long, to parakeets, 7 to 13 centimetres long.

Australia has about 650 species of birds. The number is small, in relation to the size of the continent, probably because much of the country is semi-desert.

Among the land birds, only the order *Piciformes,* which includes the woodpecker family, is completely absent from Australia. But, in the case of many families, birds of only one species live in Australia. For example, *brolgas* are the only cranes, *jabirus* the only storks, *dollar birds* the only rollers, and *rainbow birds* the only bee-eaters. The following birds live only in the Australasian region: Australian butcherbirds, Australian magpies, birds of paradise, bowerbirds, cassowaries, certain cockatoos and other parrots, emus, fairy wrens, frogmouths, honey-eaters, lyrebirds, and mound builders.

Parrots live in all types of areas in Australia. But some species, such as *ground parrots,* live only in certain areas. Most of the 57 species do not live outside Australia.

Black-and-white birds are a common sight. Magpies are common on farm lands and pastures. *Peewees,* or *magpie-larks,* also live in many parts of Australia. They make cup-shaped nests of mud. *Willy wagtails,* or *black-and-white fantails,* often make their nests nearby. Australian magpies, butcherbirds, and currawongs make up the Australian shrike family. The true magpies of Malaysia and elsewhere belong to the crow family.

The 13 species of Australian fairy wrens are small birds, only about 13 centimetres long. Most of this

White Heron

Robin Smith Photography

Kiwi N.Z. National Publicity

Takahe

P. Morrison, courtesy N.Z. Wildlife Branch

length is tail. The males are brightly coloured blue and black, or red and black, or even lilac.

Frogmouths belong to the same order as nightjars and have similar colouring and habits. Their mouths are extremely wide. These birds are about the size of crows. They lay two or three rounded, white eggs in a flat nest of sticks built on a horizontal branch.

The 69 species of honey-eaters range in size from about 10 centimetres to more than 33 centimetres. *White-plumed honey-eaters* live in many parts of Australia. But *helmeted honey-eaters* live only in a small area near Melbourne, where swamp gums grow. *Painted honey-eaters* prefer mistletoe berries to the nectar and insects that most species eat.

Unlike other bowerbirds, *spotted bowerbirds* live in dry inland regions. In the west, these birds live where desert figs grow.

Only four species of birds of paradise live in Australia. They are three species of riflebirds and one species of manucodes, *trumpeter manucodes.*

The types of swamp and water birds that live in most countries also live in Australia. They include avocets, cormorants, ducks, egrets, grebes, herons, ibises, jaçanas, rails, and stilts. But fewer species live in Australia than in other areas. Except for some dotterels and plovers, all the waders are winter visitors from the Northern Hemisphere. They include curlews, godwits, sandpipers, and tattlers.

Sea-birds do not differ in kind from those of other areas. *Silver gulls* are the only common gulls. These birds also breed on the shores of some inland lakes. *Whiskered terns* and *gull-billed terns* live mainly on lakes and estuaries. Other terns, such as *bridled terns, sooty terns,* and *noddy terns,* live around the coast. *Little penguins* are the only penguins that live in Australia. They breed along the coasts.

Each year, the people of the Furneaux Islands in Bass Strait gather half a million *mutton birds,* which are young *short-tailed shearwaters.* Their meat is supposed to taste like mutton. See SHEARWATER in the main volumes.

In July and August, *wandering albatrosses* and *giant petrels* appear off the eastern coast after breeding in South Georgia, in the South Atlantic Ocean.

Most birds that migrate from the northern winter are waders. But two are swifts—the large *spine-tailed swifts* and *fork-tailed swifts. Double-banded dotterels* breed in New Zealand, but winter in Australia. Several land birds, including *channel-billed cuckoos, koel cuckoos, dollar birds,* and *rainbow birds,* fly south from New Guinea to breed. *Shining starlings, nutmeg pigeons,* and *white-tailed kingfishers* do not go south of the tropics.

New Zealand. Birds are the dominant *vertebrates* (animals with backbones) in New Zealand. Until men arrived and introduced other mammals, the only mammals there were bats. Many flightless birds, such as geese, giant rails, and moas, lived there. Later, some species of flightless birds, such as moas, became extinct. Birds of other species flew from Australia and became established in New Zealand. But, today, the proportion of flightless birds is still large. The flightless *wekas* and *kiwis* live in many parts of the New Zealand forest. But two other flightless birds—*takahes* and *kakapos*—are extremely rare and live only in certain areas.

New Zealand's largest parrots are *kakapos.* They are heavy birds, 66 centimetres long. They cannot fly, but glide for as far as 91 metres. They run well.

Waterfowl and shore birds are similar to those in Australia and other neighbouring countries. *Wry-billed plovers* are the only birds with twisted bills. Ornithologists are unable to explain why they are twisted.

Apart from South Pacific petrels and albatrosses and two species of cuckoos, all the birds that migrate to New Zealand are waders. For example, godwits fly south to spend summer in the Southern Hemisphere. *Long-tailed cuckoos* fly to New Zealand from Fiji, Tonga, and Samoa for the summer. Small *shining bronze cuckoos* fly south for the summer from the Solomon Islands, which are 3,200 kilometres north of New Zealand.

Nine species of birds from Australia have arrived and bred in New Zealand during the last 100 years. This fact suggests that all New Zealand birds originally migrated from Australia. The oldest, or first, of these birds, such as kiwis, are the birds that now differ most from those in Australia. Families that are today found only in New Zealand followed. These families include New Zealand wrens and the family of wattle birds to which the *saddlebacks* and now probably extinct *huias* belong. The flightless wekas, takahes, and kakapos must have arrived later and lost their powers of flight in New Zealand, because they belong to families of birds that live in other parts of the world, and most of these birds can fly. Ornithologists think that the next group to arrive in New Zealand were birds with close relatives in other parts of the world. These birds include *New Zealand dotterels, grey warblers, paradise ducks,* and *tomtits.* The last group of birds to arrive were modern Australian species, such as *harriers, silver-eyes, spurwing plovers,* and *stilts.*

Half of the 230 species of local birds are sea-birds. They include cormorants, gannets, gulls, and terns. Some of them have special requirements and live only in restricted areas that have the necessary conditions. The South Pacific families include 70 species of petrels, 11 species of penguins, and 9 species of albatrosses. Many of these birds breed on the sub-antarctic islands south of New Zealand.

Aids to Learning

Related Articles. See BIRD, in the main volumes, and its list of related articles.

Outline of this article is as follows:

I. **The Malaysian Subregion**
II. **The Australasian Region**
  A. New Guinea
  B. Australia
  C. New Zealand

Books to Read about this topic include:

Cayley, Neville W. *What Bird Is That?* 6th ed. Angus and Robertson, 1971.

Gould, John. *Birds of New Guinea.* Methuen, 1970.

Gould, John. *Birds of Asia.* Methuen, 1969.

Power, E. *New Zealand Water Birds: An Artist's Journal.* Collins, 1973.

BIRDSVILLE (pop. 65), a small town in western Queensland, lies on the Diamantina River, about 10 kilometres (6 miles) from the border of South Australia. A stock route runs from the town to Maree in South Australia, a distance of 500 kilometres (310 miles). People refer to the route as the *Birdsville Track*.

BIRDWOOD, WILLIAM RIDDELL (1856-1951), BARON OF ANZAC AND TOTNES, commanded the Australian and New Zealand Army Corps (ANZAC) during World War I in Egypt, Gallipoli, and France. In 1918, he was appointed to the British Fifth Army. In 1925, he was made commander-in-chief, India, with the rank of field marshal. He was born in India and educated at Clifton and Sandhurst Military Academy.

BISHOP, JOHN (1903-1964), a noted conductor and music teacher, was director of the Elder Conservatorium, in Adelaide, from 1948 to 1964. He was a founder of the Adelaide Festival, of which he was artistic director until his death. He was also a founder of the National Music Camp Association and the National Youth Orchestra. He was born at Aldinga, in South Australia, and educated at the Royal College of Music, in London.

BISMARCK ARCHIPELAGO. See BISMARCK ARCHIPELAGO in the main volumes; PAPUA NEW GUINEA in the other Australasian volume.

BJELKE-PETERSEN, JOHANNES (1911-), a member of the Australian Country party, became premier of Queensland in 1968. He was born at Dannevirke, in New Zealand. He was educated at Taabinga Valley School and by correspondence courses. He became member for the country electorate of Nanango in 1947. From 1963 to 1968, he served as minister for works and housing.

BLACK FRIDAY, Jan. 13, 1939, is remembered in Victoria as the day on which the worst bush fires in living memory occurred. Spread by the worst imaginable fire weather, the fires caused 71 people to lose their lives. They destroyed large areas of forest, and brought havoc to farm lands and rural communities.

BLACK LINE. See TASMANIAN ABORIGINES in the other Australasian volume.

BLACK SNAKES usually refers to the *red-bellied black snake* in Australia. Most of these snakes live in coastal areas from Cape York to South Australia. Some also live inland in certain areas. The snakes are shiny black above and pink to crimson below. Most of them grow to about 1·5 metres (5 feet) long, but some grow to 2·4 metres (8 feet). They usually live near swamps or streams and feed mainly on frogs. An average of 20 young are born alive, usually between January and March. Red-bellied black snakes are venomous, but their bites are seldom fatal. The snakes are normally shy and inoffensive.

Scientific Classification. Red-bellied black snakes are in the family *Elapidae*. They form genus *Pseudechis*, species *P. porphyriacus*.

BLACK SOIL PLAINS occur in various parts of Australia. In these plains, the soil is extremely dark and may be brown, greyish-brown, or black. Plains of brown soil lie around Broome, in Western Australia, and the western slopes of the Australian Alps, in New South Wales. Plains of greyish-brown soil stretch from the Barkly Tableland, in the Northern Territory, to the Wimmera district, in Victoria. Plains of black soil run from the Burdekin River, in Queensland, to the Liverpool Plains, in New South Wales. Each type of plain produces lush grass and farming land if it is well-watered.

BLACK STUMP is a term used in Australia to refer to an imaginary place on the fringe of civilization. It is often used in the expression *this side of the black stump*. One example of this usage is: "He's the biggest rogue this side of the black stump". The term probably derives from the place name Black Stump, a junction near Merriwagga, in New South Wales. Coolah, in New South Wales, also claims that the name black stump derives from a place near it.

BLACK SWAN is a completely black water bird, except for white patches on its wings and its red bill and eyes. Black swans grow to 0·9 metres (3 feet) in length. They live by lakes, rivers, and swamps in Australia. They eat water plants and small water animals. Their nests are platforms of water plants built in marshes or on islands. The females lay four to seven large, pale green eggs. Europeans first saw black swans in 1697, when members of the Dutch expedition led by William de Vlaming captured four on the Swan river in Western Australia.

Scientific Classification. Black swans are in the family *Anatidae*. They are genus *Cygnus*, species *C. atratus*.

BLACK THURSDAY, Feb. 6, 1851, was the date when one of the most devastating bush fires in the history of the state of Victoria reached its peak. The fires were apparently started by settlers who were clearing land, and left smouldering fires unattended after burning off. They began during the unusually hot dry months toward the end of 1850. Continuing high temperatures and hot winds during January, 1851, spread the fires quickly through the tinder-dry countryside. By February 6, fires were burning all around Melbourne. They extended as far as Mount Gambier in the west, Seymour in the north, and Dandenong in the east.

BLACK TUESDAY, Feb. 7, 1967, is remembered in Tasmania as the day bush fires invaded Hobart on a scale never before experienced in a city area of Australia. Sixty-two people lost their lives on that day. More than 1,400 buildings were destroyed. About 80 fires spread over an area of 250,000 hectares (625,000 acres). Damage caused by the fires totalled about $A 450 million.

BLACKALL, SAMUEL (1809-1871), was governor of Queensland from 1868 to 1871. He concerned himself with extending primary industry and education facilities. His full name was SAMUEL WENSLEY BLACKALL. He was born in Ireland. From 1847 to 1851, he was a member of the British House of Commons. Between 1857 and 1868, he was governor of Dominica, Sierra Leone, and West Africa.

BLACKBIRDERS were men who kidnapped Pacific islanders to work on sugar and cotton plantations in Queensland and Fiji. In Australia, blackbirding flourished between 1863 and 1904. From the 1860s, sugar growing in northern Queensland began to expand. At first, sugar farmers relied on convicts for cheap labour, but considered them unable to work in tropical areas. Traders, such as Robert Towns,

shipped *kanakas* (labourers) from the Solomon Islands, the New Hebrides, and New Guinea, and sold them cheaply to the farmers (see TOWNS, ROBERT, in the other Australasian volume). Many of the traders took the kanakas by force. These traders became known as *blackbirders*.

From 1872 to 1890, both the Queensland and the British governments passed acts aimed at controlling the recruitment and conditions of employment of the kanakas. But the acts were difficult to enforce, and blackbirding continued. In 1904, the federal government abolished kanaka labour, and gave a bounty for sugar cut by white labourers. The British government stopped kanaka labour in Fiji in 1910.

BLACKBOY is a name commonly used in Australia for any species of *Xanthorrhoea*. These palm-like plants have strap-shaped leaves and long, straight flowering heads springing from the centre of the plant. Some species have a short rounded butt, bearing the remains of old leaf bases. They are often charred by bush fires and their name appears to have been suggested because of their resemblance to a group of Aborigines with spears. They are also called *grasstrees*. They grow extremely slowly. *Kingia*, which grows only in Western Australia, is also called *blackboy*.

Scientific Classification. Blackboys belong to the lily family, *Liliaceae*. They are genus *Xanthorrhoea* or genus *Kingia*.

BLACKBURN, JAMES (1803-1854), an engineer and architect, became famous for his Gothic design for churches. He also surveyed roads, designed bridges, and planned water supplies for Hobart and Launceston. Blackburn was transported to Van Diemen's Land (now Tasmania) for forgery in 1833. In 1841, he gained a free pardon, and practised as an architect in Van Diemen's Land until 1849. He then moved to Melbourne, where he designed the Yan Yean water supply.

BLACKET, EDMUND (1817-1883), designed many fine buildings in the early years of Sydney's development. Most of his buildings, notable for their delicate Gothic style, are still standing. They include the main buildings of the University of Sydney and various Sydney churches, such as St. Philip's Church, St. Stephen's Church, and part of St. Andrew's Cathedral. Blacket was born at Southwark, in England. He taught himself architecture. In 1842, he settled in Sydney and worked as a teacher in Anglican schools. In 1847, he became diocesan architect. He was appointed colonial architect in 1849. See also ARCHITECTURE in this volume.

BLACKFISH is a strongly built fish that lives along rocky shorelines and in estuaries in southern and eastern Australia. Fishermen use green seaweed as bait to catch them, because blackfish eat only plants. Their average weight is a pound (453 grams). Their flesh is soft but tasty. The fish are sold in the eastern states.

Scientific Classification. Common blackfish are in the drummer family, *Kyphosidae*. They are genus *Girella*, species *G. tricuspidata*.

BLACKTRACKERS were Aborigines once widely employed by Australian police forces to track fleeing criminals or find people lost in the bush. Their successes in the past have made them into almost a legend. But today most state police forces no longer employ blacktrackers. The Northern Territory police still employ 36 Aborigines who bear the title tracker and the Queensland police employ six blacktrackers. Western Australia no longer employs blacktrackers permanently, but from time to time local officers in a particular district will employ trackers for a period of time when they need them. Victoria's last blacktracker, Victor Sheppard, retired because of ill-health in 1969 and was not replaced.

In 1825, the New South Wales Legislative Council recommended that Aborigines could help to track down bushrangers. An Aborigine named Mosquito soon became famous as a blacktracker. In 1834, two Aborigines, Migo and Mollydobbin, tracked down a five-year-old boy near Fremantle, in Western Australia, after following his track for more than 32 kilometres (20 miles) in rough bush-land. In 1864, another black-tracker found three lost children in Victoria, after white people had searched for a week. Blacktrackers, especially in northern Australia, do much to prevent cattle-stealing.

BLACKWATER (pop. 1,968) is a rapidly developing coal-mining centre in central Queensland, 193 kilometres (120 miles) west of Rockhampton on the Capricorn highway. Coal is sent by rail to Gladstone and then shipped to Japan. Experts estimate that reserves of coal amount to more than 1,000 million tonnes (1,000 million tons). Japan's demand for coking coal for its metal industries prompted intensive prospecting in the 1960s. Coal is won by both open cut and underground mining. Coal mining began at Blackwater in 1967. Mines there produce over 6 million tonnes of coal each year.

BLAIR, HAROLD (1924-), an Australian dramatic tenor, became the first Australian Aborigine to gain a diploma in music and a world-wide reputation as a singer. He was born at the Cherburg Aboriginal settlement at Murgon, in Queensland. He worked in the cane fields and on dairy farms as a labourer. He studied music in Melbourne, and, later, in the United States.

BLAIR ATHOL is the site of a small but economically important coal basin in Queensland. It lies off the western edge of the Bowen basin about 384 kilometres west of Rockhampton. Geologists found coal at Blair Athol while searching for gold.

An unusual feature of one of the three workable seams is that although it is composed of hard black coal it is close enough to the surface to be mined by open-cut methods. This seam is up to 32 metres (105 feet) thick. It contains highly bituminous non-coking coal that is low in ash content. The deposit contains an estimated 204 million tonnes (200·74 million tons) of coal. At the present rate of consumption, this reserve should provide sufficient coal to last for twenty years.

The basin developed in Upper Permian times on Lower Palaeozoic rocks. The coal lies within a thin layer of Tertiary sediments and basalts, Permian soft sandstone sediments, and lower Palaeozoic slates. See EARTH in the main volumes.

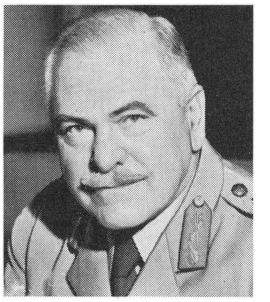
BLAMEY, SIR THOMAS (1884-1951), an Australian soldier, gained distinction when he was appointed commander of the Allied land forces in the southwestern Pacific during World War II. He held the position from 1942 to 1945. Blamey was born at Wagga Wagga, in New South Wales. During World War I, he became chief of staff. During World War II, he commanded Australian troops in the Mediterranean and northern Africa from 1939 to 1942. He directed the withdrawal of troops from Greece in 1941. From September, 1942, to January, 1943, he took command of the fighting in New Guinea. He retired from active service in 1945.

BLAXLAND, GREGORY (1778-1853), an Australian pioneer, became famous as one of the first men to cross the Blue Mountains, in New South Wales. He travelled with William Lawson and William Charles Wentworth. They left Blaxland's farm at South Creek, near the mountains, on May 11, 1813. On May 31, they reached a peak from which they could clearly see the fertile Bathurst plains to the west. The party returned to the farm on June 6. Blaxland was born in the county of Kent, in England. In 1806, he travelled to Sydney with his brother John. After the Blue Mountains expedition, he settled on a farm near Parramatta. See also BLUE MOUNTAINS and LAWSON, WILLIAM, in this volume; WENTWORTH, WILLIAM CHARLES, in the other Australasian volume.

BLENHEIM (pop. 14,859) is the chief town of the province of Marlborough, which occupies the northeastern corner of the South Island of New Zealand. The town is on the Wairau Plain. It is the centre of a rich sheep farming district. The town has several light manufacturing industries. It receives an average of 2,500 hours of sunshine a year—the highest average in New Zealand. The town is a tourist centre.

BLIGH, WILLIAM (1754-1817), a British naval officer, won fame as a result of a mutiny on his ship, the *Bounty,* in 1789. He was born in Cornwall. During his term as governor of New South Wales, he was arrested by his officers.

The Mutiny on the Bounty took place on April 30, 1789, soon after the ship had left Tahiti with a cargo of breadfruit trees. Most of the crew, led by Fletcher Christian, mutinied and cast Bligh and 18 other crew members adrift in an open boat only 5 metres (18 feet) long. Incredibly, Bligh navigated the boat across the 5,823 kilometres (3,618 miles) of water to Timor. In 1790, after he had returned to London, he was tried by court-martial for the loss of his ship. But no blame was attached to him. Some mutineers settled on Pitcairn Island. Ten other mutineers were caught on Tahiti and tried in 1792. Five were found not guilty, three were hanged, and two were reprieved.



Sydney Morning Herald

Sir Thomas Blamey

Mitchell Library

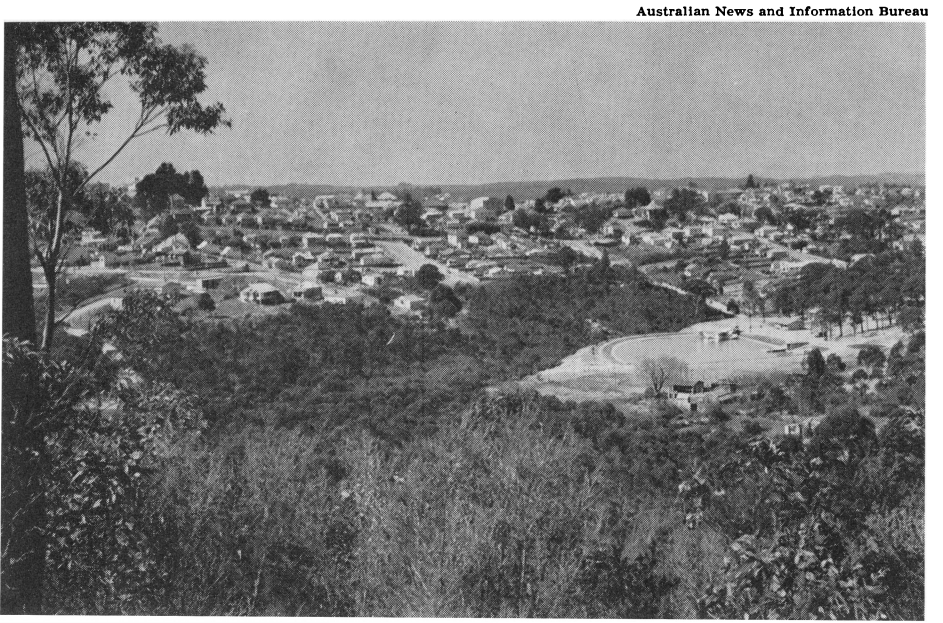
William Bligh

The Rum Rebellion took place on Jan. 26, 1808. Some officers of the New South Wales Corps, encouraged by John Macarthur and led by Captain George Johnston, arrested Bligh in Government House. They objected to Bligh's harsh rule, his short temper, and his reforms. Bligh had tried to stop trading in rum and the illegal distilling of spirits.

Bligh was detained in Sydney until 1809. He then sailed to Van Diemen's Land (now Tasmania), where he sought the help of Lieutenant-Governor Collins, but without success. In 1810, he returned to Sydney, where Governor Macquarie had taken office. Bligh returned to Britain the same year. The incident did not affect Bligh's later career. He was promoted to vice-admiral in 1814.

See also RUM REBELLION in the other Australasian volume.

Australian News and Information Bureau



The Blue Mountains form a sprawling, mid-eastern plateau of the Great Dividing Range. Towns that rely mainly on tourism for their livelihood lie in natural settings. The towns form the City of the Blue Mountains.

BLUE MOUNTAINS rise about 64 kilometers (40 miles) west of Sydney, in New South Wales. Early settlers gave them their name because they usually appear in a bluish haze. Fine drops of eucalyptus oil in the atmosphere cause the haze.

During the early days of settlement in Sydney, the mountains blocked expansion. Explorers tried to cross the mountains by way of the valleys, but found them impassable. In 1813, William Charles Wentworth, Gregory Blaxland, and William Lawson crossed the range by following the mountain ridges. The surveyor William Cox built the first road over the Blue Mountains in 1815. Today, there are several towns in the Blue Mountains area. They form a corporate city called the City of the Blue Mountains.

The Blue Mountains Range forms a mid-eastern plateau of the Great Dividing Range. The Blue Mountains cover about 1,424 square kilometres (550 square miles). They are bounded by the Emu Plains on the east and the Bathurst Plains on the west. The Blue Mountains rise to about 1,097 metres (3,600 feet) above sea level in the west. The Cox's and Grose rivers run across the range in deep, steep-sided valleys. Most of the slopes are covered with eucalyptus trees. Tourism is the main industry in the area. Such towns as Blackheath, Hazelbrook, Katoomba, Leura, and Wentworth Falls attract thousands of visitors each year. Visitors enjoy such attractions as Echo Point and the Three Sisters, near Katoomba, and Govett's Leap, near Blackheath.

The City of the Blue Mountains (pop. 36,627) is a corporate city with its centre about 97 kilometres (60 miles) west of Sydney. There are 24 towns under the control of the City Council of the Blue Mountains. Together, they cover an area of 1,399 square kilometres (540 square miles)—one of the largest city areas in the world. The council has its headquarters at Katoomba, the largest town. The council deals with all aspects of local government. The City Council of the Blue Mountains was incorporated in 1947.

History. The mountains were first named by Governor Phillip in 1788. He called the section to the north of the Grose River *Carmarthen Hills,* and that to the south *Landsdowne Hills.* But these names soon fell into disuse. People preferred the name *Blue Mountains,* which described the distinctive haze.

In June, 1789, Governor Phillip began seeking a way round the mountains. He went up the estuary of Broken Bay as far as Richmond Hill. He named the Hawkesbury River and returned to Sydney. During the 1790's, several expeditions explored the area between Sydney and the Blue Mountains. In 1802, Francis Barrallier, an ensign of the New South Wales Corps, went from Picton up the Wollondilly River. He reached a point 26 kilometres (16 miles) south of the Jenolan Caves in one of the most rugged parts of the Blue Mountains.

In November, 1804, George Caley went from Windsor past Richmond Hill and climbed up the ridge that divides the Grose and Colo rivers. In this way, he was able to go as far as Mt. Tomah and Mt. Banks.

In 1805, Governor King fitted out an expedition consisting of men familiar with the mountains. This party reached Mt. Tomah, possibly by travelling up the northern part of the Grose River valley.

On May 11, 1813, Gregory Blaxland, William Lawson, and William Charles Wentworth left Blaxland's farm at South Creek. They crossed the Nepean River at Emu Ford. They went along the ridge that divides the Grose and Cox's rivers and reached Mt. Victoria. On May 28, they arrived at Mt. York and then travelled down to the Cox's River. When they reached Mt. Blaxland, they realized that they had found a route across the mountains.

In November, 1813, George William Evans, deputy-surveyor general, was sent to continue this exploration. He reached the Fish River and followed it down to its junction with Campbell's River. Evans named the combined rivers the Macquarie River. After observing the fertile Bathurst Plains, he returned to the settlement in Sydney. He was the first European to cross the Great Dividing Range.

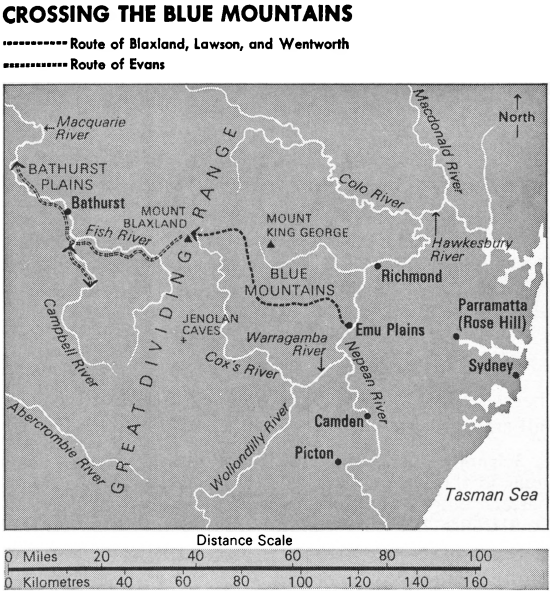
Governor Macquarie ordered William Cox to build a road across the Blue Mountains, using convict labour. The road was completed by early 1815. Governor Macquarie went on tour over the Blue Mountains to the Bathurst Plains, leaving Sydney on April 15, 1815, and reaching the plains on May 4.

Two main influences prompted the successful crossing of the Blue Mountains in 1813, both involving the urgent need for new pastures. First, the settled districts had been depleted by grazing and by overstocking. Second, the land had suffered a series of drought years and plagues of caterpillars.

Blaxland, Lawson, and Wentworth succeeded in crossing the Blue Mountains largely because they realized that they had to go along the *watershed*—the dividing ridge—instead of the valleys.

See also BLAXLAND, GREGORY, and LAWSON, WILLIAM, in this volume; WENTWORTH, WILLIAM CHARLES, in the other Australasian volume.

CROSSING THE BLUE MOUNTAINS

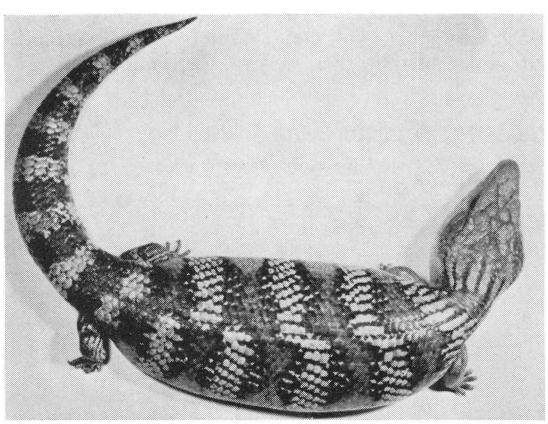


BLOOD BANKS are central places for taking, processing, and saving human blood for storage in bottles and packs. The Australian blood transfusion service is a Red Cross organization, subsidized by state and federal governments. It has collection centres in all the main cities, and blood banks in many country hospitals. Blood is given without cost to patients. It is provided to hospitals for use in heart and other operations, childbirth, and for accident victims. Port Moresby has a blood bank, and New Zealand has blood transfusion centres at Auckland and Wellington. The Sydney transfusion service is the main research centre for Australia and New Zealand.

BLUE-RINGED OCTOPUSES are commonly found along the southern Australian coast. They are recognizable by their blue ringed colouration. They are well-known because they can bite people with their parrot-like beaks. Their salivary glands produce a deadly poison that enters the wound. Several people have died as a result of bites by these animals. The octopuses grow rapidly and their entire life-cycle takes only 7 months from the hatching of a parent to the birth of the next generation. An average-sized blue-ringed octopus is 4 to 6 centimetres (1·6 to 2·4 inches) in diameter. Some grow to 20 centimetres (8 inches).

Scientific Classification. Blue-ringed octopuses are classified as *Hapalocklaena maculosa*.

BLUE-TONGUED LIZARD is the name given to several *species* (kinds) of large skink lizards in Australia. All are stout-bodied, short-tailed lizards with smooth scales. They move slowly. They produce live young. Blue-tongued lizards eat snails, insects, and berries. The *eastern blue-tongued lizard,* found in all states, is grey or brown with irregular dark bands.



Eric Worrell

Blue-Tongued Lizard

Scientific Classification. Blue-tongued lizards belong to the family *Scincidae* and the genus *Tiliqua*. The eastern blue-tongued lizard is *T. scincoides*.

BLUEBOTTLES are stinging animals that drift on the surface of warm seas. In other parts of the world similar animals are called *men-of-war* (see PORTUGUESE MAN-OF-WAR in the main volumes). Bluebottles have gas-filled floats and, hanging below them, tentacles that may be 9 metres (30 feet) long. The tentacles have hundreds of thousands of tiny stinging cells along their length. Bluebottles entangle and stun small fish with these tentacles, then pull them up and eat them. Bluebottles can sting bathers severely. Their stings are probably never fatal, but they may cause people to faint.

Scientific Classification. Bluebottles are in the phylum *Coelenterata* and the genus *Physalia*.

BLUEY is an Australian slang term with several meanings. It may refer to the roll of possessions carried by a *swagman* (tramp), possibly from his use of a blue blanket—also called a bluey—to roll them up in. *Bluey* can also mean a type of cloth, a type of cattle dog, or a red-headed person.

BLUFF (pop. 3,241) is a town in the extreme south of the South Island of New Zealand. It is in Southland province, about 27 kilometres (17 miles) south of Invercargill. The town lies on a natural harbour and has one of the most modern ports in the country. Engineers have built an artificial island in the harbour. This island has two berths for coastal ships and three berths for overseas ships. Roads and railway lines serve each berth.

BOARD, PETER (1858-1945), was director of education in New South Wales from 1905 to 1923. During that time, he modernized the syllabuses of primary and secondary schools and did much to expand technical education. He also set up *continuation schools* (schools for children who were unsuited to academic work). Board was born at Wingham, in New South Wales.

BODENWIESER, GERTRUD (1890-1959), greatly influenced modern dance in Australia through her work with the Bodenwieser Ballet group. She was a professor of dance and choreography at the State Conservatorium of Music and Dramatic Art in Vienna. Later, she formed a dance group that reached Australia in 1939 after touring Europe. The company stayed. Australian dancers gradually replaced the original members of the group. Madame Bodenwieser arranged the choreography for the group and had much of its music specially written. She also trained many local teachers of dancing. Her influence greatly encouraged interpretative dancing in Australia. She was born at Vienna, in Austria.

BOILING POT is a blow-hole at Noosa Heads in southeastern Queensland. The constant movement of the seas has worn a deep opening in the basalt rocks through which waves and spray have been constantly forced.

BOLDREWOOD, ROLF (1826-1915), pen-name of THOMAS ALEXANDER BROWNE, was the author of the Australian classic *Robbery Under Arms.* This novel, first published in three volumes in 1888, is an exciting melodrama based mainly on actual stories of bushrangers. Boldrewood also contributed articles and serial stories to various Australian magazines. He was born in London, and was taken to Australia in 1831. His experience as a farmer, police magistrate, and gold-fields commissioner influenced his writing.

BOLTE, SIR HENRY (1908-), was premier and treasurer of Victoria from 1955 to 1972. During the 1950s and early 1960s, he actively encouraged investment in Victoria. To do so, he made trips to Europe and the United States. The state developed rapidly under his guidance. Bolte was born at Ballarat, and educated at Skipton State School and the Ballarat Church of England Grammar School. In 1947, he became a member of the Legislative Assembly.

Australian News

Sir Henry Bolte

BOMBORAS are big and powerful waves that rise over a shallow reef a considerable distance out to sea. Most of the biggest and most dangerous waves ridden by surfers in Australia are bomboras. Examples of bomboras include those at Queenscliff and Long Reef in Sydney.

BONAPARTE ARCHIPELAGO is a group of islands off the northern coast of Western Australia. The group includes Bigge, Cassini, Champagny, D'Arcole, and Maret islands. They stretch across the mouths of Montague, York, and Brunswick sounds. The French navigator Nicolas Baudin named the islands and the group in 1802 (see BAUDIN, NICOLAS, in this volume).

BONNER, NEVILLE (1918-), the first Aboriginal member of parliament, was elected as a Liberal party senator for Queensland in 1971. NEVILLE THOMAS BONNER was born at Tweed Heads in New South Wales and was educated for 12 months at Beaudesert primary school before leaving for farm work. Later he worked as head stockman, as labour overseer on Palm Island, and as a manufacturer of boomerangs in Ipswich. In 1967, he became president of the One People of Australia League (OPAL).

BONNEY, CHARLES (1813-1897), a politician and explorer, pioneered an overland route from the site of Albury, on the Murray River, south to the Ovens River, in Victoria, in 1836. With Joseph Hawdon, he pioneered the first overland cattle route from the Goulburn River to Adelaide in 1838. In 1848, Bonney became a magistrate and commissioner of lands in South Australia. He was elected to the House of Assembly in 1856 and became commissioner of works in the first ministry. During 1865, he became a member of the legislative council. He was manager of the South Australian railways from 1869 to 1871.

BONYTHON is a noted South Australian family that has been prominent in educational, cultural, and charity affairs in South Australia for many years.

Sir John Langdon Bonython (1848-1939) was the sole owner and editor of the *Advertiser,* the Adelaide newspaper. His generous donations benefited many institutions, such as the University of Adelaide. He provided funds for its great hall and endowed a chair of law. He was also president of the Commonwealth literary fund for more than 20 years. Towards the end of his life, he gave £100,000 towards the parliament house in Adelaide.

Sir John Lavington Bonython (1875-1960), son of Sir John Langdon, became lord mayor of Adelaide.

John Langdon Bonython (1905-), a barrister, became vice chairman of the *Advertiser.*

Hugh Reskymer Bonython (1920-) is a speedboat and speedway champion. He is also the director of art galleries in Adelaide, Sydney, and Melbourne.

BOOMERANG. See BOOMERANG in the main volumes; ABORIGINES (Boomerangs) in this volume.

BORA GROUND was a type of Aboriginal initiation ground in eastern Australia. It generally consisted of two circles, the larger 9 to 12 metres (30 to 40 feet) in diameter and the smaller 5 to 6 metres (15 to 20 feet) formed with piled-up earth. The circles were joined by a narrow pathway up to 800 metres (half a mile) long. Boys were taken to the ground for their initiation ceremonies.

BORDER COLLIES are among the most widely used sheep dogs in Australia. They were developed in Scotland from several breeds. Border collies grow to about 53 centimetres (21 inches) in height, and weigh about 23 kilograms (50 pounds). They have a working life of 8 to 10 years. Their colours vary between black, black and white, and black, white, and tan. Australia is one of the few countries to recognise the border collie as a pure breed. It works equally as well as a *huntaway*—that is, working around the rear of a flock, or as a *headway*—working around the front and sides.

BOROBUDUR. See ARCHITECTURE (picture) and HISTORY OF INDONESIA (Indian Influences) in this volume.

BORONIA is the name given to about 90 *species* (kinds) of the citrus family that grow only in Australia. Boronias are common on heathlands. Most of them grow in Western Australia. Most boronias are small shrubs with pink, fragrant flowers. Most boronias have open flowers with four petals and eight stamens. Many Australians grow boronias in their gardens, particularly *brown boronia* because of its fragrance. One species, *native rose,* is highly prized for its scent and deep colour. It is extremely rare, and grows only around Port Jackson. Another species, *B. coerulescens,* has blue flowers. This type of boronia grows in arid parts of Victoria and Western Australia.

Scientific Classification. Boronias belong to the family *Rutaceae.* They are genus *Boronia.* Brown boronias are species *B. megastima.* Native roses are species *B. serrulata.*

Boronia

Thistle Y. Harris

BOROVANSKY, EDOUARD (1902-1959), a noted ballet dancer, teacher, and choreographer, founded the Borovansky Ballet—one of Australia's best-known ballet companies—in 1940. Borovansky was born in Czechoslovakia and became a principal dancer at the Prague National Theatre. In 1939 and 1940, he visited Australia with the De Basil Ballet Company. He remained in the country to form the Borovansky Ballet. The company was disbanded in 1961, after a final tour of Australia and New Zealand.

BORUMBA DAM blocks Yabba Creek, a tributary of the Mary River, near Imbil in Queensland. It is 31 metres (102 feet) high and 325 metres (1,112 feet) long. The dam can store 42,555,750 cubic metres (34,500 acre-feet) of water. The dam was begun in 1960 and completed in 1964. It supplies water for irrigation and for the city of Gympie.

BOTANY BAY, the site of the first European landing on the east coast of Australia, is an inlet about 11 kilometres (7 miles) south of Sydney. It is a safe harbour and is used by many fishing boats. A runway of Kingsford Smith Airport extends into its western side. The La Perouse Aboriginal reserve is on its northern shore. At Kurnell, on its south-eastern shore, large ships use the port facilities of an oil refinery.

James Cook entered Botany Bay in H.M.S. *Endeavour* and landed at Kurnell on April 29, 1770. The botanist Sir Joseph Banks gathered many unusual plants on the shore. Cook named the bay after his work. In 1779, Banks recommended the establishment of a settlement at Botany Bay. The British government agreed. It chose Arthur Phillip as governor of the settlement. Phillip anchored in Botany Bay on Jan. 20, 1788. But he considered the site unsuitable for a permanent settlement, and moved to the site on which Sydney now stands on Jan. 26, 1788. A few days later, the French navigator Jean François la Pérouse also anchored in the bay. Pérouse remained there for six weeks, and buried a priest, Louis Receveur, who died on February 17, at Frenchman's Bay. In 1817, Governor Lachlan Macquarie built forts on Bare Island and at Henry Head.

Related Articles in the Australasian volumes include:

Banks, Sir Joseph	La Pérouse, Jean François
Cook, James	Macquarie, Lachlan
History of Australia	Phillip, Arthur

BOUGAINVILLE. See BOUGAINVILLE in the main volumes; PAPUA NEW GUINEA and SOLOMON ISLANDS in the other Australasian volume.

BOUGAINVILLE, LOUIS DE (1729-1811), was the first Frenchman to sail right round the world. His voyage lasted from 1766 to 1769. In 1768, Bougainville sailed westwards from the New Hebrides and sighted reefs not far from the Queensland coast. But he did not sail close enough to sight the coast itself. On the same journey, he named Bougainville Island. He was born in Paris.

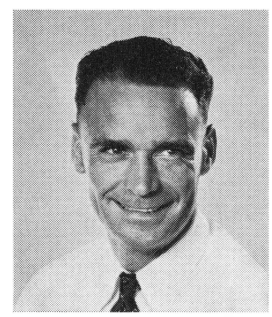
BOURKE (pop. 3,620), a town in New South Wales, stands on the Darling River, about 800 kilometres (500 miles) north-west of Sydney. It is a railway centre for a vast sheep-growing area that extends as far as Wanaaring, in the north-west, and Barringun, in the north. The town has a large meat works. In addition, it handles cotton and fruit produced by farmers on land irrigated by the Darling River. In 1835, the explorer Thomas Mitchell built a stockade 11 kilometres (7 miles) from the site of the present town. He named it Fort Bourke. Bourke became a town in 1860.

BOURKE, SIR RICHARD (1777-1855), was governor of New South Wales from 1831 to 1837. He was perhaps the most liberal of the early governors. He tried to ensure that *emancipists* (pardoned convicts) received civil rights, and curbed the powers of magistrates to punish convicts. He also encouraged representative government, religious tolerance, and trial by jury. He favored the establishment of a settlement in the Port Phillip district. In 1832, he helped to establish a system of assisted migration from Britain. Bourke was born in Dublin, and educated at Oxford University.

BOWEN (pop. 5,797) is a town in Queensland about 192 kilometres (120 miles) south-east of Townsville. Coal is brought to Bowen by rail 80 kilometres (50 miles) from the rich Collinsville field northwest of the town. Plants in Bowen coke the coal for the Mount Isa smelters. See COLLINSVILLE in this volume.

The geological Bowen basin extends as far south as Broken River at Collinsville. The Middle Bowen basin coal lies beneath marine sandstone dating from the late Permian period. The Upper Bowen basin surrounding the coastal valley at Bowen is a Pliocene or early Pleistocene region. See EARTH in the main volumes.

BOWEN, EDWARD (1911-), a British radiophysicist, was one of the team that developed radar. Later, he helped pioneer radio astronomy in Australia.



CSIRO

Edward Bowen

He was born at Swansea in Wales and named EDWARD GEORGE BOWEN. He studied under the scientist Sir Edward Appleton at London University. In 1935, he joined Sir Robert Watson-Watt in developing radar as a warning system. He was later in charge of the group that designed airborne radar sets to detect other aircraft and submarines. From 1940 to 1943, Bowen lived in the United States, where he worked with other scientists to develop radar. He moved to Australia in 1944.

From 1946 to 1971 he was chief of the division of radiophysics of the Commonwealth Scientific and Industrial Research Organization (CSIRO). This group pioneered the science of radio astronomy (see RADIO TELESCOPE in the main volumes). Bowen was largely responsible for building the huge radio telescope at Parkes in New South Wales. It opened in 1961, and became the first radio telescope to detect the existence of radio stars called *quasars*.

BOWEN, SIR GEORGE FERGUSON (1821-1899), a British statesman, was the first governor of Queensland, from 1859 to 1868. He was governor of New Zealand from 1868 to 1873 and of Victoria from 1873 to 1879. In 1878, he became unpopular in Victoria when he supported the dismissal of 400 civil servants. He was later governor of Mauritius and of Hong Kong. He was born in Donegal, in Ireland.

BOWEN, JOHN (1780-1827), founded the first settlement on Van Diemen's Land (now Tasmania) in 1803. Philip Gidley King, the governor of New South Wales, sent Bowen with a party of 46 soldiers and convicts to Van Diemen's Land to forestall a possible French settlement on the island. Bowen chose Risdon Cove on the River Derwent for his camp. But he was unable to control the hardened soldiers and convicts, and the settlement made little progress. In 1804, King replaced him with David Collins, who founded the site of Hobart (see COLLINS, DAVID, in this volume). Bowen was born at Ilfracombe, in Devon. He entered the Royal Navy in 1794, and landed in Sydney in March, 1803.

BOWERBIRD. See BOWERBIRD in the main volumes.

BOWLING is a sport that became popular in Australia after it was introduced in 1960. It was introduced into Malaysia, New Zealand, and Singapore in the mid-1960s. For information on how to play the game, see BOWLING in the main volumes.

By the mid-1960s, Australia had 71 bowling centres. The Ten Pin Bowling Congress of Australia holds national championships each year. The first Australian championships took place in 1962. Australian champions now compete in the world invitation championships. Bowlers from Singapore took part in an international match in Australia in 1965.

BOWLS is a game played by rolling wooden balls on a level grass plot called a green. The game of bowls has grown enormously in popularity since three or four people introduced it into Australia in 1845 and into New Zealand about 15 years later. Australia has more than 300,000 registered bowlers, and New Zealand has almost 50,000. Almost 100,000 women play bowls in Australia.

Club Competitions. Australia has more than 1,800 men's clubs with almost 220,000 members. It has more than 1,600 women's clubs, most of them associated with the men's clubs. New Zealand has more than 380 clubs in the North Island and more than 240 clubs in the South Island.

In both countries, clubs hold their own annual championships and engage in inter-club competitions for a flag or pennant. Such competitions are known as *pennant matches.* New South Wales alone has 13,000 men engaged in metropolitan pennant matches in seven grades. Another 15,000 play for country pennants.

National Competitions. New South Wales, Queensland, South Australia, and Victoria meet each other at least once a year. These competitions do not involve any trophy. But every two years, immediately before the Australian individual championships, the states play each other in turn for the Interstate Shield. The singles, pairs, and fours championships follow.

The states also hold their individual championships each year, as well as a champion-of-club-champions event, which is restricted to the reigning singles champions of the various clubs.

New Zealand holds national championships yearly at Auckland, Christchurch, Dunedin, and Wellington in turn. Each centre also holds its own championship.

International Competitions. Bowlers from Australia and New Zealand have exchanged visits with bowlers from Britain, South Africa, and the United States. But these visits were largely good-will tours, in which the leading bowlers did not take part.

In 1964, an Australian team toured South Africa, playing three tests. South Africa won the first two and Australia won the third.

Australia and New Zealand have a successful record in the British Empire and Commonwealth Games. New Zealand has won the singles once, the fours twice, and the pairs four times. It has won two silver medals in the singles, two in the pairs, and one in the fours. Australia has won no gold medals, but has finished second in the singles, in the pairs, and in the fours.

The first world bowls championships were held at Sydney in 1966. Australia won the Leonard Trophy awarded to the most successful competing country.

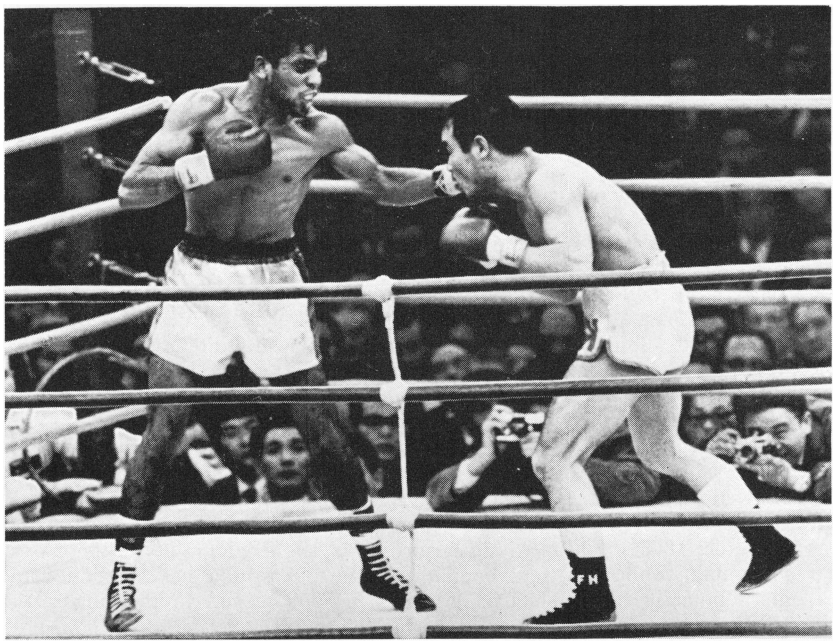
Controlling Bodies are the Australian Bowls Council, comprising three delegates from each of the six states, and the New Zealand Bowling Association Council, with delegates from the country's 22 bowling centres. These councils are responsible mainly for policy matters, such as laws and the values of trophies. The Australian council meets every two years, and the New Zealand council every year. Both have small executive committees.

History. The first game of bowls in the Southern Hemisphere appears to have been played on Jan. 1, 1845, in Tasmania. The oldest surviving club in Australia is the Melbourne Bowling Club, which was founded in 1864. The Balmain, City, and Parramatta clubs, in New South Wales, were all formed in 1880. The Royal New South Wales Bowling Association, also formed in 1880, is considered to be the oldest bowling association in the world. The Victorian Bowling Association was formed a few months later.

The Maoris may have played a type of bowls. Archaeologists have found nine stone disks. But the game as it is known today was introduced into New Zealand in 1860. The first club, the Auckland Bowling Club, was formed the following year.

Among famous Australian bowlers are Andy Stanley and Alf Alley, who won championships. Both died in the early 1960s. Glyn Bosisto won the Australian singles championship four times in succession. In New Zealand, bowlers winning five or more national championships become *gold star* players. Only four players have gained this distinction. They are Maxwell Walker, M. J. Squire, Pete Skoglund, and Frank Livingstone. Skoglund won the pairs once and the fours four times, his last success being in 1960. Livingstone won the singles, pairs, and fours twice each. His last success was in 1962.

See also LAWN BOWLING in the main volumes.



Boxing Champions from Australia include the Aboriginal boxer Lionel Rose. He won the world bantamweight title in 1968 by defeating the Japanese champion Masahiko "Fighting" Harada on points in a 15-round fight in Tokyo.

Fighter

BOXING is a popular professional sport in Australia. Amateur boxing attracts comparatively little interest in Australia but shares the limelight with the professional side of the sport in New Zealand.

World Titles have been won by four Australians and one New Zealander in professional ranks. Young Griffo, the first Australian world champion, defeated New Zealand-born world featherweight champion "Torpedo" Billy Murphy in Sydney on Sept. 3, 1890. In November, 1952, Jimmy Carruthers won the bantamweight title from South African Vic Toweel at Johannesburg. In February, 1968, Lionel Rose won the bantamweight title from Japan's Masahiko "Fighting" Harada in Tokyo. In January, 1969, Johnny Famechon won the featherweight title from a Cuban-born Spaniard, Jose Legra, in London.

In 1915 and 1916, Australian middleweight Les Darcy won several bouts billed as for the world title, but he never won an undisputed title. Another Australian, Mick King, also won and lost in two bouts billed for the world middleweight title, but these were not recognized outside Australia.

Commonwealth Titles have been won by the following Australian boxers: Hughie Mehegan, Jimmy Kelso, Ron Richards, Dave Sands, Jimmy Carruthers, Pat Ford, George Barnes, Darby Brown, Johnny Famechon, Bob Dunlop, Lionel Rose, Henry Nissen, Tony Mundine, Paul Ferreri, Charkey Ramon, Bobby Dunne, Hector Thompson, and Big Jim West. New Zealanders with Empire titles include Bos Murphy, Barry Brown, Tuna Scanlan, and Manoel Santos.

Organizations. The Amateur Boxing Union of Australia, formed in 1924, controls amateur boxing in Australia. The Australian Boxing Federation, formed in 1967, competes with Stadiums Pty. Ltd., formed in 1914, for control of professional boxing. In New Zealand, the New Zealand Boxing Council and South Pacific Association vie for control.

History. The first boxers in Australia were convicts transported from Britain in the early 1800s. Larry Foley, known as "the father of Australian boxing", taught many of the great boxers of the 1880s and 1890s, including Frank Slavin, Jim Hall, Jim Barron, Peter Jackson, and Young Griffo. Foley promoted the Griffo-Murphy bout of 1890, the first world title fight held in Australia.

Hugh D. McIntosh began a new era in Australian boxing when he built Sydney Stadium for a world heavyweight title fight between champion Tommy Burns of Canada and Australian Bill Squires. On Aug. 24, 1908, Burns won by a 13th-round knockout.

The world bantamweight title fight between Jimmy Carruthers and Henry "Pappy" Gault, at the Sydney Sports Ground in November, 1953, broke Australian attendance and gate receipts records. About 32,500 persons paid $A84,000 to see Carruthers win.

The outdoor gate record was broken at Kooyong, a Melbourne suburb, on March 8, 1969, when Lionel Rose successfully defended his world bantamweight title against Alan Rudkin. Total receipts were about $A300,000. The indoor gate record was set at Sydney Stadium on July 28, 1969, when Johnny Famechon successfully defended his world featherweight title against Harada. Total receipts were about $A148,000.

Related Articles in World Book include:

Main Volumes

Boxing
Fitzsimmons, Bob

Australasian Volumes

Carruthers, Jimmy
Darcy, Les
Famechon, Johnny
Rose, Lionel
Sands, Dave

BOY SCOUTS. See Scouts in the other Australasian volume.

BOYD is a well-known family connected with arts in Australia. Three artists have made the Boyd family name famous in painting. They are **Arthur Merric Boyd** (1862-1940), **Theodore Penleigh Boyd** (1890-1923), and **Arthur Merric Bloomfield Boyd** (1920-). The first Arthur Merric Boyd exhibited at the Royal Academy in 1891. He was known mainly for his watercolours, as was his wife, Emma Minnie Boyd. Their three sons, Merric (1888-1959), a ceramicist, Theodore Penleigh, a painter, and Martin (1893-1972), a novelist, were also successful. Theodore Penleigh was a brilliant landscape painter. Theodore Penleigh's son, Robin (1920-1971), an architect, became known for his writings, notably the *Great Australian Ugliness,* published in Melbourne in 1960. Merric Boyd's eldest son, Arthur Merric Bloomfield Boyd, learned a great deal from his grandfather, and through contact with other artists, notably Wilfred McCulloch, Danilla Vassilieff, Sidney Nolan, and Albert Tucker. The primitivism of his paintings, drawings, etchings, and ceramics derives from Vassilieff. His discipline derives from Tucker. As a result of these influences, the European painters whose work attracted him most were Chagall and Picasso. Boyd showed an extraordinary feeling for the Australian landscape and a lyrical sense of line and colour. He liked erotic subjects and was influenced by his grandfather's reading from the Bible. He was a leader among painters of the *Antipodean School,* whose Whitechapel Gallery exhibitions gained fame in London during the 1960s. The *Boyd style,* which he developed, has dominated the work of a large number of third and fourth generation Boyds. Arthur's two brothers, Guy (1923-), a ceramicist and sculptor, and David (1924-), a ceramicist and painter, also achieved commercial success.

See also ARTS OF AUSTRALIA (picture) in this volume.

BOYD, BEN (1803?-1851), was a pioneer and adventurer who gained fame for his business schemes during the early part of Australia's development. His full name was BENJAMIN BOYD. He was born at Merton Hall, in Scotland. In 1840, he decided to start trading in Australia. He founded the Royal Bank of Australia, and, as the bank's representative, landed in Sydney in 1842. Boyd immediately invested the bank's money. By 1844, he was one of the largest squatters and traders in the colony. He built his own port, called Boyd Town, on Twofold Bay, to ship wool from his properties in the Monaro district. He also set up a whaling station there (see WHALING in the other Australasian volume). His ventures lost a lot of money and in 1847 the shareholders forced him out. In 1849, he left Australia and went to California, where he prospected for gold without success. In 1851, he disappeared in the Solomon Islands.

BRABHAM, JACK (1929-), an Australian motor-racing driver, won the Drivers' World Championship in 1959, 1960, and 1966. He won the 1966 championship in a car of his own design. That same year, he won the manufacturers' championship in formula one cars. Brabham and his cars also dominated formula two racing in Europe in 1966.

Brabham was born in Sydney. He began work at 16 as a mechanic. At the age of 18, he joined the Royal Australian Air Force and served two years as a flight mechanic. In 1948, he won the Australian, New South Wales, and South Australian speedway championships. He went to Britain in 1954, but was not highly regarded as a driver at first. He returned to Australia in 1955 with his revolutionary rear-engined Cooper Bristol and won the Australian Grand Prix.

Sir Donald Bradman

Sydney Morning Herald

Jack Brabham

BRACKEN, THOMAS. See LITERATURE OF NEW ZEALAND in the other Australasian volume.

BRADFIELD, JOHN JOB CREW (1876-1943), was an Australian engineer. He was the designer and chief engineer of the Sydney Harbour Bridge and of Sydney's underground railway system. He also put forward the Bradfield Plan, in which he planned to divert the flow of some Queensland rivers to irrigate the dry interior on the western side of the Great Dividing Range. This plan proved impracticable, but a similar one succeeded in the Snowy Mountains. Bradfield was born at Sandgate, in Queensland, and educated at Sydney University.

BRADMAN, SIR DONALD (1908-), was probably the greatest batsman in the history of cricket. From 1927 to 1949, he scored 28,067 runs, with an average innings of 95·14 runs. He played in 52 test matches and captained Australia from 1936 to 1948. In 80 test innings, he made a total of 6,996 runs at an average of 99·94 runs. He hit 117 centuries, 29 of them in tests. His highest score was 452 not out, for New South Wales against Queensland, at Sydney in the 1929-1930 season. His highest batting score in test cricket was 334 at Leeds in 1938 in a test against England. During that 1930 tour Bradman made 974 runs for seven innings at test matches, which is still a record. He averaged 139·14 runs. He was born at Cootamundra, in New South Wales, and named DONALD GEORGE BRADMAN. He retired from test match cricket in 1948. See also CRICKET in this volume.

BRADY, MATTHEW (1799-1826), was a convict who turned bushranger. He was born at Manchester, in England. In 1820, he was transported to Van Diemen's Land (now Tasmania) for seven years for forgery. In 1824, he escaped from Macquarie Harbour penal settlement with 13 other prisoners. They reached Storm Bay in a whaleboat. For the next two years, Brady led various gangs of bushrangers and led a daring raid on Sorell. In 1826, he was captured and hanged.

BRAITHWAITE, WARWICK (1896-1971), a New Zealand-born conductor, led many of the world's orchestras. He was born at Dunedin and educated there and at the Royal Academy of Music in London. From 1932 to 1940, he was conductor of the Sadler's Wells Opera Company. In 1953 and 1954, he returned to New Zealand to conduct the National Orchestra. He was artistic director of the National Opera of Australia in 1954 and 1955. He returned to Sadler's Wells in 1960.

BRAMPTON ISLAND is one of the tourist resorts of the Great Barrier Reef. It lies about 23 kilometres (14 miles) off the central northern coast of Queensland. The island has an area of 518 hectares (1,280 acres) and a maximum height of 219 metres (720 feet). It is part of the Cumberland group of islands. Air and launch services bring tourists from Mackay, which is about 32 kilometres (20 miles) south-east of the island. The main tourist attractions are swimming, fishing, viewing coral, water-skiing, and taking cruises to other islands.

BRAND, SIR DAVID (1912-), the leader of the Liberal party in Western Australia, was premier of Western Australia from 1959 to 1971. He also served as treasurer and minister for tourists. After his party lost the elections in 1971, he became leader of the opposition. Brand was born at Dongara, in Western Australia, and educated at Mullewa school. He entered the state's Legislative Assembly as a member for Greenough. He was leader of the opposition from 1957 to 1959.

BREAM is a sea fish with a deep, flattened body and large scales. Bream range in colour through silver, bronze, or green, depending on where they live. They are commonly found in estuaries and off sheltered beaches. They are a popular sport and table fish. They average 0·9 to 1·3 kilograms (2 to 3 pounds) in size, but they have been recorded at more than 4 kilograms (8·5 pounds).

Important Australian species are the yellow fin, found from northern Queensland to Victoria, and black bream, found in Victoria and southern Australia.

Scientific Classification. Bream are in the family *Sparidae* and the genus *Acanthopagrus*. Yellow bream are species *A. australis*. Black bream are *A. butcheri*.

BREASLEY, SCOBIE (1914-), an Australian jockey, became a leading rider in Australia and Britain. In Australia, he won the Caufield Cup five times and the Sydney Cup twice. After 1950, when he settled in Britain, he won many of the world's richest races, including the Prix de l'Arc de Triomphe, in France, in 1957, and the English Derby, in 1964 and 1966. Breasley was born at Wagga Wagga, in New South Wales. He began riding in picnic races when he was 12. He had ridden almost a thousand winners in Australia before he went to Britain. From 1955, he rode more than a hundred winners a year.

BRENNAN, CHRISTOPHER (1870-1932), was an Australian symbolist poet. Most of his verse was written in the 1890s. Brennan's poetry was not popular when it was published, mainly because his intellectual abstract poetic thought and use of symbols made him a difficult and often obscure writer.

Unlike most Australian poets, he showed little concern for the Australian environment. Instead, his poetry reflected his interest in the older civilizations of Europe. In spite of this fact, the poetry he wrote during World War I overflowed with patriotism. His lyric poetry has excellent technique and musical qualities and vivid images and symbols. Brennan's poems are reflections on the relationship between man's thought and man's world. His ideal appeared to be the state in which God and man, mind and matter, and body and soul are reconciled. He believed his ideal could be reached with increased knowledge.

His later poems tend to be gentler, more human, and nearer the reader's experience, probably because of the experience of his unhappy personal life.

Brennan was born in Sydney of Irish parents. A brilliant scholar, he was awarded a classics travelling scholarship from the University of Sydney and spent some time in Germany. On his return to Australia, he held various high academic posts at Sydney University, but his unstable personality and alcoholism kept him from working steadily. He died in poverty.

BREWING INDUSTRY. Australia and New Zealand are among the leading beer-producing countries in the world. Each year, the consumption of beer averages 106 litres (23·5 gallons) for each person in Australia and 102 litres (22·7 gallons) in New Zealand. In the Northern Territory, people drink an average of 236 litres (52 gallons) per person, per year. In Australia, 24 breweries produce about 1,192 million litres (265 million gallons) of beer worth $A 112 million a year. Australians consume most of this output, but brewery companies also export beer worth $A 2 million a year. In New Zealand, 17 breweries produce about 247 million litres (55 million gallons) of beer worth $NZ 19 million a year. Most people in Indonesia and Malaysia are Muslims and are forbidden to drink alcohol because of their religion.

BRIBIE ISLAND lies off the south-eastern coast of Queensland. The island is about 27 kilometres (17 miles) long and has an area of about 155 square kilometres (60 square miles). A concrete bridge over the Bribie Passage 836 metres (2,742 feet) long connects the island with the mainland. Tourists reach the island from the Bruce Highway near Caboolture, 23 kilometres (14 miles) away. A tourist resort, the island is being developed for permanent residents. The island is a reserve.

BRICKHILL, PAUL (1916-), an Australian author, wrote *The Dam Busters* (1951), which was later filmed. It was based on the Royal Air Force raids on the Mohne and Eder dams in May, 1943. The book provides a thrilling account of the preparation of the special bomb used in the raid, the training for the attack, and the courage of the air crews. Other works include *Reach for the Sky* (1954), a biography of air-ace Douglas Bader, who flew despite the handicap of having artificial legs. PAUL CHESTER JEROME BRICKHILL was born in Melbourne. He served as a fighter pilot during World War II and was shot down twice.

BRIDGES. Early Australian bridges were constructed mainly upon country roads leading from the original settlements. The oldest of these bridges still existing is the Richmond Bridge over the Coal River in Tasmania. This bridge is a multiple span stone arch bridge and was completed in 1825. The oldest bridge on the mainland, the Lennox Bridge, on the Western Road to Lithgow, New South Wales, was completed eight years later.

The largest Australian bridge is the Sydney Harbour Bridge, which was completed in 1932. It has a total length of 1,149 metres (3,770 feet). The main span is 503 metres (1,650 feet) and consists of two steel arch trusses braced together and supporting a steel and concrete deck. Excellent sandstone foundations permitted the use of this form of construction in which the bridge applies large thrusts to the end abutments.

Another major bridge in Sydney, the Gladesville Bridge, was completed in 1964. It is also an arch bridge. It crosses the Parramatta River and consists of four concrete ribs linked together and spanning 304 metres (1,000 feet). It is the longest concrete arch in the world.

The West Gate Bridge, at the mouth of the Yarra River in Melbourne, is of a totally different form from those in Sydney, mainly as a result of the poorer foundation conditions. The overall length of structure is 2,582·6 metres (8,473 feet). It consists of prestressed concrete approach viaducts with five main steel spans at the centre of the bridge. These spans comprise steel box girders supported by straight cables spanning from towers at either end of the central span of 336 metres (1,102·5 feet). In 1970, one of the steel spans collapsed during construction, causing the death of 35 men and delaying the date of completion of the bridge by several years.

The Story Bridge across the Brisbane River links the northern suburbs and inner city of Brisbane with the southern suburbs. It was opened in 1940 and remained a toll bridge until 1947. The main steel superstructure consists of a symmetrical cantilever bridge of 3 spans with a central channel span of 281·6 metres (924 feet). The total bridge length is 1,375·6 metres (4,513 feet) and passes 30·5 metres (100 feet) above high water level.

The first major prestressed concrete bridge in Australia, the Narrows Bridge crossing the Swan River in Perth, Western Australia, was opened in 1959. It has a total length of 335·3 metres (1,100 feet) consisting of 5 spans with a central span of 97·5 metres (320 feet). The deck consists of 8 concrete beams precast in short lengths and stressed together by external stranded cable.

A more recent major prestressed concrete bridge is the Tasman Bridge crossing the Derwent River in Hobart and opened in 1964. This bridge includes the deepest pile in Australia driven to a depth of 81·5 metres (267·5 feet) below water level.

Australia's most unusual major bridge is the Batman Bridge crossing the Tamar River in Tasmania at Whirlpool Reach. As a result of the poor ground conditions on the eastern shore, the whole main span has been supported from cables connected to an A-frame tower located on the hard rock on the western side. The bridge was completed in 1967.

The longest bridge in Australia crosses the Burdekin River and carries both the roadway and railway between Ayr and Home Hill in Queensland. The main bridge is 1,103 metres (3,620 feet) long with 10 truss spans over the river channel, each of length 76·2 metres (250 feet). The total length of the bridge including approach spans is 3·2 kilometres (2 miles).

The longest bridge in New Zealand spans the Rakaia River. It has a total length of 1,743 metres (5,720 feet). New Zealand's largest bridge is the Auckland Harbour Bridge. It was opened in 1959. See AUCKLAND in this volume.

See also BRIDGE in the main volumes; and SYDNEY HARBOUR BRIDGE and WALTER TAYLOR BRIDGE in the other Australasian volume.

BRIDGES, SIR WILLIAM THROSBY (1861-1915), a major-general, was appointed the first commandant of the Royal Military College, Duntroon, Canberra, in 1911. Following the outbreak of war in 1914, he commanded the Australian Imperial Force in Egypt. He landed with the Anzacs on Gallipoli on the morning of April 25, 1915. While visiting the front line on May 15 he was severely wounded by a Turkish sniper and died three days later on a hospital ship. His body was brought back to Australia and buried on a hill overlooking the military college at Duntroon. Bridges was born at Greenock in Scotland.

BRIGALOW is the popular name for a kind of wattle that grows in central and southern Queensland and northern New South Wales. It forms dense scrubs. Large areas of Queensland have now been cleared of brigalow so that the land can be developed for pastures and crops. Sheep are sometimes used to control sucker regrowth after a burn. The timber is violet scented. The Aborigines used to make spears from the timber.

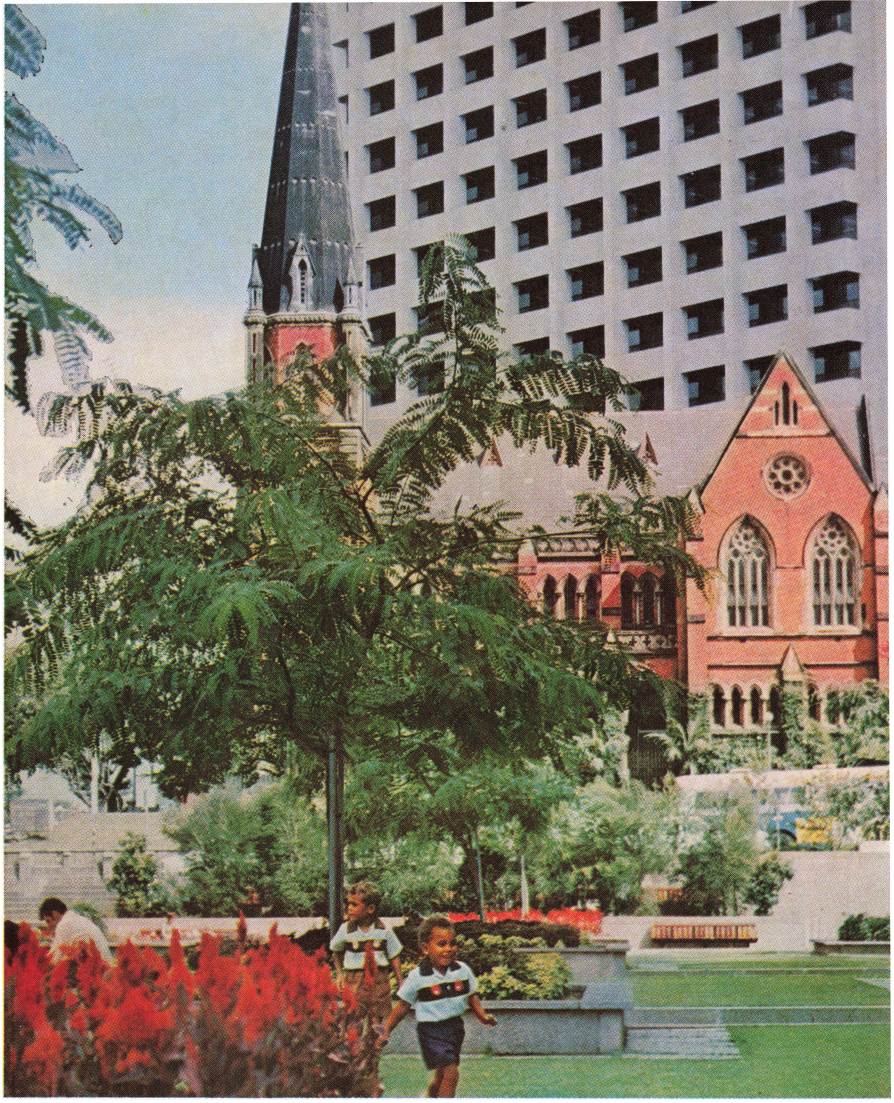
Scientific Classification. Brigalows belong to the pea family, *Leguminosae*. They are genus *Acacia*, species *A. harpophylla*.

BRINSMEAD, HESBA FAY (1922-), a leading writer of fiction for young adults, won both the Mary Gilmore prize and the Australian Children's Book of the Year Award, for *Pastures of the Blue Crane* (1964). It was also the subject of a successful television serial. Set in a New South Wales rural community, the plot is mainly concerned with racism. Her other works include *Beat of the City* (1966).

BRIQUETTES are small blocks of hard durable fuel. They are manufactured by the State Electricity Commission of Victoria from the extensive deposits of brown coal in the Latrobe Valley, 145 kilometres (90 miles) east of Melbourne. The crumbly, raw brown coal has a two-thirds moisture content. This moisture is reduced to about 15 per cent by a briquetting process at the Morwell factories. This process improves the raw coal and produces a high-quality fuel that can be transported economically. The factories process more than 3·5 million tonnes (3·5 million tons) of raw coal a year to produce about 1,320,800 tonnes (1,300,000 tons) of fuel.

Brisbane

Brisbane is a rapidly expanding city. Its modern multi-storey office blocks include the State Government Insurance Office Building.



Photographic Library of Australia

BRISBANE (pop. 816,987) is the capital, commercial centre, chief port, and largest city of Queensland. It is Australia's largest river port. It has a central city population of 699,371. Brisbane is a prosperous trading and manufacturing centre, set in the rich farming and pastoral area of south-eastern Queensland. It is also near Queensland's chief coal-mining centre at Ipswich.

Most of Brisbane's wealth comes from trade. About 70 per cent. of Queensland's imports and exports passes through Brisbane. The city's main exports are the produce of the agricultural area that surrounds it—butter, wool, and meat. Its industries are based on local raw materials.

Brisbane is popular with visitors because of its pleasant climate, particularly its warm, sunny winters. Its streets and parks are bright with subtropical trees and flowers, making it one of the most colourful cities in Australia.

Location, Size, and Description

Brisbane stands on the banks of the Brisbane River, in the south-eastern corner of Queensland. The city centre is 16 kilometres (10 miles) from the sea in a direct line, but 29 kilometres (18 miles) by water. Brisbane is built on a series of low hills, rising to a little over 213 metres (700 feet) and forming a kind of amphitheatre with the Brisbane valley as its floor. The river follows a meandering course through the heart of Brisbane, dividing the city into two roughly equal parts—north and south. Brisbane has an area of 971 square kilometres (375 square miles), and is one of the largest cities in the world under a single municipal government.

Brisbane has a pleasant climate, with no extremes of temperature. Temperatures average about 16° C (60° F) in winter and about 25° C (77° F) in summer. The city has an average of 7½ hours of sunshine a day. The heaviest rainfall occurs in summer when humidity is high, especially in February and March.

The city is built in a pattern of concentric circles around its business and commercial centre. Next comes an inner ring of residential suburbs, generally made up of flats and fairly small houses. About 5 kilometres (3 miles) from the centre, another,

larger, ring forms the main residential area. Outside this area is a farming and dairying belt. But here and there, especially in the western suburbs, residential areas are growing. This general plan has also been affected by the spread of industry through the inner ring, especially along the river, by industrial development on the outer edge of the main residential district, and by extensive freeway construction.

The People and Their Work

Out of every 100 people in Brisbane, about 85 were born in Australia and nearly 9 were born in Britain. The next largest groups, about 1 person out of every 100 of each, were born in Italy, Germany, or The Netherlands. The number of citizens born abroad is proportionately less in Brisbane than in southern capitals, but overseas influences are apparent in Brisbane. For example, Brisbane has many delicatessen shops, and outdoor cafés and restaurants are springing up. The German community has its own secondary school.

Brisbane is a processing centre for the raw materials produced in the surrounding area. One out of every 4 of its people work in manufacturing, and one out of 10 in building and construction. Many kinds of factories are situated along the wharves by the river, including a sugar refinery, meat-processing plants, motor assembly works, fertilizer factories, and oil refineries. This area also has grain stores, coal stores, and oil storage depots. The inner ring of suburbs is gradually developing into an industrial area, and its population is decreasing. Industrial firms in this area include clothing factories, engineering works, and food-processing plants.

New industries have developed in some of the suburbs in the outer ring. A former munitions factory at Rocklea, on the south side, now makes electrical, agricultural, and earth-moving machinery. Industries on the north side include paper manufacturing at Petrie, tyre manufacturing at Geebung, and fruit canning at Northgate. The produce markets have been moved from their old site in the city near Roma Street railway station to Rocklea.

Cultural Life

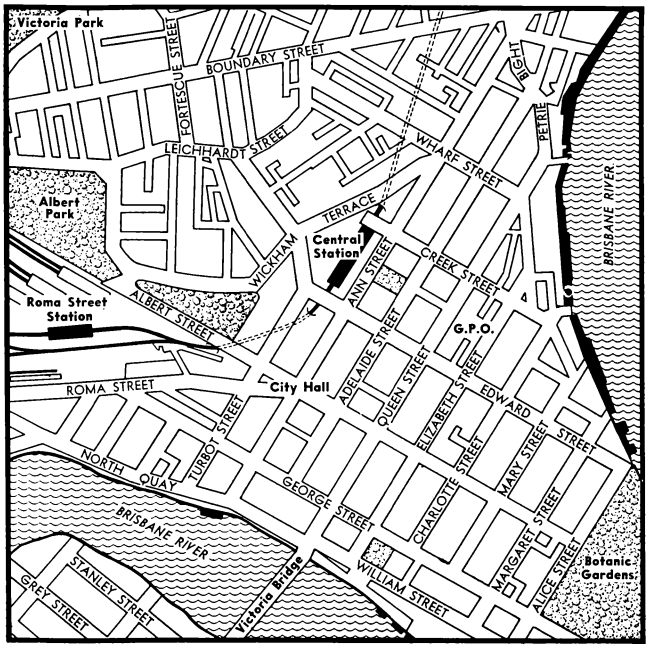
Education. The state provides most of the primary schools, as part of its system of free, compulsory,

Harold Pollock

Jacaranda Trees, *right,* **line the walks of New Farm, one of Brisbane's finest parks. Their colourful blossoms are famous.**

Central Brisbane, as shown on the map, *right,* and in the picture, *below,* nestles in a pocket of the Brisbane River.

Queensland Public Relations Bureau



secular education for children up to 15 years of age. The Queensland educational system has twelve grades, seven of them primary and five secondary. Children usually reach the leaving age between grades 9 and 10. Most primary education is carried on in secular co-educational state schools. The other schools are Church schools, most of which are Roman Catholic. Most primary schools are co-educational, except some of the Church schools.

The Roman Catholic, Anglican, Methodist, and Presbyterian Churches play a greater part in secondary education. But state high schools are increasing in number, and take more than half of the pupils. State schools are free, but most non-government schools charge fees. The Churches run separate schools for boys and girls. But state high schools are co-educational. One notable school is the Brisbane Grammar School, the second oldest grammar school in the state. The oldest girls' school is All Hallows Convent.

The University of Queensland is situated at St. Lucia, a Brisbane suburb. A second university was planned for the city in the early 1970s.

Libraries, Museums, and Art Galleries. The main reference library is the State Public Library. It maintains a service for rural readers and supervises the John Oxley Memorial Library, which specializes in Australian material. Brisbane also has 22 municipal libraries and an inter-library loan service.

The state maintains a museum, which began as a voluntary organization in 1855. The museum building also houses the National Art Gallery, which includes Picasso's *La Belle Hollandaise*.

Entertainment. Her Majesty's Theatre is the oldest live theatre in Brisbane. The S.G.I.O. Theatre, the Schonell Theatre, and the 12th Night Theatre also provide facilities for drama, opera, and ballet. The city also has several vigorous little-theatre groups, such as Brisbane Arts Theatre Society. The City Hall has a semicircular auditorium that can seat 2,500 people. It is used for all the main concerts and orchestral programmes. The Festival Hall, which seats 4,000 people, is used for boxing, wrestling, and pop concerts. The Australian Broadcasting Commission, the state government, and the city council share the cost of maintaining the Queensland Symphony Orchestra. The orchestra performs in the City Hall and sometimes in an orchestral shell in the Botanic Gardens. The state also maintains the Conservatorium of Music. The city has two national and four commercial radio stations, and one national and three commercial television stations.

Publishing. Brisbane has two morning papers, *The Courier-Mail* and *The Australian;* one afternoon paper, *The Telegraph;* and two Sunday papers, *The Sunday-Mail* and *The Sunday Sun*. Brisbane also has several book publishers.

Transport

The city's road systems radiate to the north and south from the ends of Victoria Bridge, which was once the city's only bridge across the river.

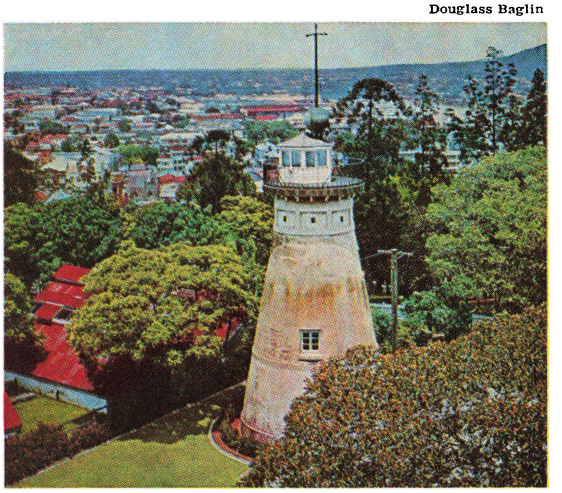
Commuters travel to work by state railways, ferries, and diesel buses. Some independent bus lines operate from seaside suburbs to the city. Others provide feeder services to the state railway or municipal transport system. The city council maintains a vehicular ferry and several small launches for passenger ferry services. Central Station is the hub of the suburban railway system. Roma Street is the main station for long-distance passengers and goods traffic. Mayne has the city's chief railway yards. South Brisbane is connected with Sydney by a uniform-gauge railway.

The main airport is at Eagle Farm, 8 kilometres (5 miles) from the city centre. Jet air services connect it with cities overseas. Domestic airlines link Brisbane with all states through Sydney, with Darwin, and with the main centres of Queensland.

Things to See and Do

Brisbane has several buildings of historical interest. The Windmill was erected to grind grain for convicts when Brisbane was a penal settlement.

The Windmill, one of Brisbane's historic buildings, at one time ground grain for convicts.
Douglass Baglin



Doomben Racecourse, outside the city, is the site of an annual racing carnival.

Centenary Swimming-Pool is one of Brisbane's many recreational facilities.

Queensland Public Relations Bureau; Harold Pollock

Newstead House, built in 1846, was the home of the government resident when Queensland was part of New South Wales. Queensland was proclaimed a separate colony at the deanery of St. John's Anglican Cathedral in 1859. Outstanding modern buildings include the City Hall, opened in 1931.

The city has more than 3,237 hectares (8,000 acres) of parks. The most notable of these are the Botanic Gardens, King George Square, Roma Street Park, and New Farm Park. New Farm is noted for its rose gardens and jacaranda avenues.

Brisbane is a convenient base for tourists exploring the south-eastern corner of Queensland. Mt. Cootha offers splendid views of Brisbane and the river to Moreton Bay. Mt. Glorious offers views of both the countryside and the sea. North of Brisbane are the picturesque Blackall Ranges. To the south are the national parks of Springbrook and the Lamington Plateau. Seaside resorts range from bayside areas with quiet waters to the open sea beaches of the nearby North Coast and the Gold Coast. The area offers river, bay, and deep-sea fishing.

Brisbane has three racecourses: Eagle Farm, Doomben, and the sand track at Albion Park, known to local people as *The Creek*. Eagle Farm is the headquarters of Queensland racing. Albion Park is one of the best wet-weather racecourses in Australia. The home of Queensland cricket is the Brisbane Cricket Ground, which is used for Sheffield Shield and test matches. Frew Park, Milton, the centre for lawn tennis, has been used for Davis Cup finals. Rugby league is played at Lang Park, Australian Rules football at the Cricket Ground, soccer at the Exhibition Ground, and rugby union at Normanby. Hockey is centred mainly on Victoria Park.

Government

Brisbane differs from other Australian cities in that all its local government activities are controlled by a single body, the Brisbane City Council. The city is divided into wards with the same boundaries as the state electorates. Every three years, voters elect a city council on a system of compulsory preferential voting. Each ward returns one alderman. The whole city, voting as a single electorate, elects the lord mayor. The two political parties represented on the city council are the Municipal Labour party, a specially organized branch of the Australian Labor party, and the Citizens Municipal Organization, which has no connexion with any state party.

History

The site on which Brisbane now stands was surveyed by the British explorer John Oxley in 1823 (see OXLEY, JOHN, in the other Australasian volume). In 1824, a penal settlement was established where the northern end of Victoria Bridge now meets the river-bank. The settlement was originally named Moreton Bay. Later, it was renamed after Sir Thomas Brisbane, who was then governor of New South Wales. In 1839, the convicts were removed, and, in 1842, Brisbane was opened for free settlement. It grew slowly at first. In 1849, 700 British migrants settled in Fortitude Valley. Moreton Bay was then part of New South Wales, with a government resident in Brisbane. But, in 1859, Queensland became a separate colony with Brisbane as its capital. At the time of the first census, in 1861, Brisbane's population was 6,051.

Brisbane's new status as capital and the new colonial government's vigorous immigration policy helped the city's growth. Government buildings were erected and old business premises were replaced with new ones. After an economic crisis in 1866, business improved with the first major gold discovery, at Gympie, in 1867. Brisbane's population grew rapidly. By 1881, it had reached 31,109.

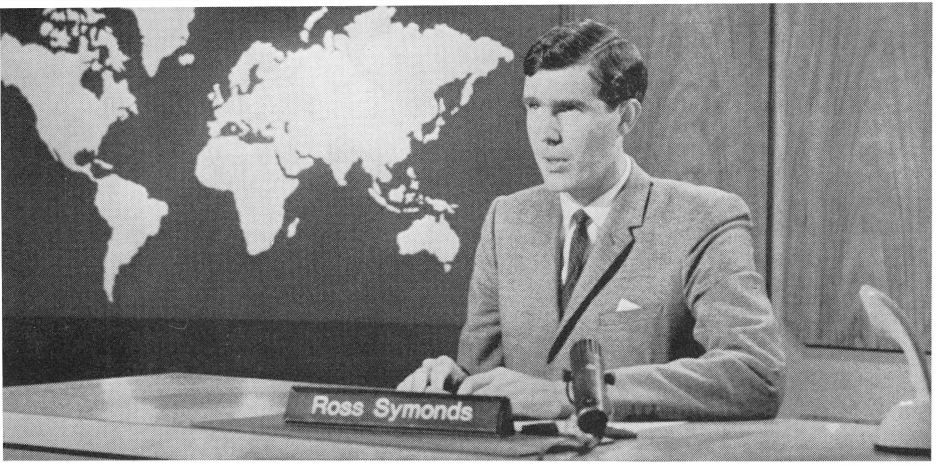
Another period of building occurred in the 1880s. Buildings of this period still in use include Her Majesty's Theatre and the headquarters of the Queensland National Bank, now united with the National Bank of Australasia. In 1884, a horse-drawn tram system was introduced, and, in 1890, electrification of the system began. In 1893, heavy rains washed away Victoria Bridge. In the same year, a financial crisis occurred. But confidence was soon restored, and the city continued to develop. In 1922, a trust representing government and local authorities took over the tramways, and, in 1925, the city council gained control of them. Later, the city's water supply was increased by the construction of dams at Mt. Crosby and Lake Manchester. In 1935, work began on the Somerset Dam, on the Stanley River, both for water storage and for flood control. The dam was completed in 1954. Brisbane continued to develop after World War II. Its population increased steadily and its industries expanded. Oil was found at Moonie, 322 kilometres (200 miles) away. The oil is piped to Brisbane for refining.

See also QUEENSLAND in the other Australasian volume.

BRISBANE, SIR THOMAS (1773-1860), was governor of New South Wales, in Australia, from 1821 to 1825. Brisbane believed that free settlers were needed to develop the colony properly. He encouraged explorers and set limits on land grants. He gave much power to his colonial secretary, Frederick Goulburn, and gradually lost control of the civil service. In 1824, he complained to the British colonial secretary that Goulburn was withholding official documents from him. The British government responded by dismissing both Goulburn and Brisbane. Brisbane was born in Ayrshire, in Scotland, and educated at Edinburgh University.

BRISBANE LINE was a military plan for defending Australia during World War II. It provided that the Australian Army would hold a base line drawn from Adelaide to Brisbane against an invading army. Sir Iven Mackay drew up the plan for the government as the most practical way of using the country's limited armed forces. The plan was never put into operation.

BRISBANE WATER is a shallow but extensive inlet of the sea on the central coast of New South Wales. It lies at the end of the northern arm of Broken Bay. Tourists visit the area to enjoy bush-walking, take part in water sports, and see plant and animal reserves and historic sites. Gosford is the main town.



Gert D. Wolff

News Broadcasts provide an extremely important service in every country of Australasia. They cover local and overseas news.

BROADCASTING plays an important part in people's lives in all the Australasian countries. In Australia and New Zealand, almost every home has both a radio and a television receiver. In Indonesia, Malaysia, Papua New Guinea, and Singapore, a large number of the people are served by radio, either at home or in community centres. But television reception is available to only about half the people of Singapore; less than 40 per cent. in Malaysia and under 10 per cent. in Indonesia. Television was in the early planning stage for Papua New Guinea in the mid-1970s.

All six countries have national broadcasting organizations that aim to serve all the people. Australia is the only one that, in addition to its national, non-commercial services, has radio and television stations run by privately owned companies that derive profit from paid advertisements or sponsored programmes. But the national services of the other countries also broadcast advertisements in some of their programmes to provide additional revenue. All of the national broadcasting services present straight entertainment, news, and information. In addition, they accept the responsibility for presenting educational and cultural programmes. They also encourage and provide employment for local writers, composers, actors, and musicians. In Australia, the ABC programmes include more classical music, serious drama, and documentaries than do the commercial stations. The latter seek to attract the mass audience with more popular material.

In Indonesia, Malaysia, Papua New Guinea, and Singapore, broadcasting has a further purpose—that of uniting their people despite wide variations in language, culture, and religion. Through broadcasting, the governments seek to accelerate national development and encourage a national outlook.

Radio and television enable people to keep abreast of news and events throughout the world. They can also enjoy the best in classical or popular music or fine performances of drama. They can benefit from the knowledge and experience of leaders in all fields of activity, or they can maintain their interest in purely local happenings which often have the greatest immediate impact on their lives.

Control and Operation of Broadcasting. Only organizations authorized by governments may operate broadcasting channels for radio or television. The extent of regulation or control by government varies among the countries.

In Australia, Papua New Guinea, and New Zealand, the government does not control broadcasting programmes. In the other three countries, broadcasting services are run by departments of government and their operations and policy are under the direct control of the government.

Australia has adopted a dual system of broadcasting, with national and commercial stations operating side by side. For this reason, there are two national authorities, one for each system. The Australian Broadcasting Commission (ABC) consists of 11 part-time members, who are appointed by the government, but are independent of government control. This commission is responsible for the national radio and television services. The Australian Broadcasting Control Board—with 3 full-time and 2 part-time members—licenses and supervises the commercial stations. Private companies own and operate these stations. The commission and the board make sure that political and controversial subjects are treated fairly.

The minister for the media is the minister responsible for broadcasting. The minister has statutory control over ABC programmes, except for political and controversial matters, concerning which the commission has complete independence. But this power has not been exercised since 1945. In the case of the ABC, the postmaster general's department owns and operates the national radio and television transmitters. The commercial station transmitters are owned and operated by the private companies concerned.

The ABC's radio programmes are broadcast throughout Australia by 75 medium-wave and 6 internal short-wave transmitters. Some programmes are broadcast simultaneously in all states. Some are relayed within the individual states. Others are purely local.

In eight of Australia's main cities, including the federal and state capitals, listeners may choose between two ABC radio stations. These stations operate in separate networks. A third regional network of provincial stations broadcasts programmes contributed to it by these two networks.

In television, 53 transmitters, supplemented by 39 repeater stations, carry the ABC's programmes throughout Australia. The programmes originate from six main programme-producing centres, which are located in the state capitals. Transmitters at remote centres such as Darwin and Mount Isa receive most of their programmes by micro-wave.

Most of the 118 commercial radio stations in Australia now operate independently. Before the introduction of television they were frequently linked in nation-wide networks. On the other hand, the 48 commercial television stations, including 5 repeater stations, share the heavy programme production costs by networking arrangements. They circulate most programmes. But in the case of news or major events, they sometimes use direct relay.

The ABC secures its funds from governmental sources. The commercial stations obtain their funds from advertising. Revenue from listeners' and viewers' licences is paid into consolidated revenue.

In New Zealand, as in Australia, independent statutory bodies established by the government control radio and television. There are three such bodies—one for radio; one for commercial television; and one for non-commercial television. New Zealand has 50 national medium-wave radio stations and 4 small privately owned local stations.

In Indonesia, the ministry of information controls the Radio Republik Indonesia and Television Republik Indonesia (RRI/TVRI) through the director-general of RRI/TVRI.

The Minister of Information and Broadcasting is responsible for major matters of policy in Malaysian broadcasting. The day-to-day operations are under the director-general of Radio/Television Malaysia (RTM). It broadcasts in four main languages—Malay, Chinese, English, and Tamil. In Singapore, the Radio/Television Singapore (RTS) is the responsibility of the Minister of Culture. It also broadcasts in Chinese, English, Malay, and Tamil. Broadcasting in Papua New Guinea is controlled by the National Broadcasting Commission of Papua New Guinea. This is an independent body with members appointed by the government. It operates 18 short-wave and medium-wave stations and 5 repeater stations.

Employment in Broadcasting. The ABC has by far the largest staff of any broadcasting organization in Australia. It employs more than 6,500 people, including those members of the Postmaster General's Department who man the transmitters. In a country the size of Australia, a large staff is needed to provide full programme services in all six states, to provide overseas service, and to maintain six orchestras.

Australia's more than 160 commercial radio and television stations employ a total of 8,000 persons, including a large number of sales and advertising personnel. New Zealand's radio and television services employ more than 2,500 people. Indonesia has more than 3,000 people employed in radio and television. Malaysia has nearly 4,000, Singapore has about 900, and Papua New Guinea has 750.

History. Radio began in Australia in 1924, when stations went on the air in Sydney and Melbourne. In the next year or so, more stations began broadcasting in the other Australian capital cities.

In Australia, the government established the Australian Broadcasting Company in 1929 on a non-profit-making basis. They also licensed a number of independent commercial stations. In 1932, the Australian Broadcasting Commission, operating under the Australian Broadcasting Act, replaced the Australian Broadcasting Company. The Australian Broadcasting Control Board was established in 1947. This board supervises the programmes of the commercial stations and also allocates frequencies to all broadcasting stations, national as well as commercial.

In New Zealand, the government authorized the Radio Broadcasting Company of New Zealand to operate radio stations in 1926. The company was replaced in 1932 by the New Zealand Broadcasting Board, which had powers similar to the ABC. In 1936, the government took over direct control of broadcasting and replaced the board by the New Zealand Broadcasting Service. In 1962, broadcasting again became independent of the government when the New Zealand Broadcasting Corporation (NZBC) was established.

The Dutch government set up a radio service in Indonesia in the 1930s. About the same time, the British government established the Malaysian Broadcasting Corporation with headquarters in Singapore. It provided a radio service for Malaysia and Singapore. In Papua New Guinea, a small commercial station began operations in Port Moresby in 1935.

Television began in Australia in 1956, when national and commercial stations were opened in Sydney and Melbourne. By 1960, the ABC and commercial services had extended in turn to Brisbane, Adelaide, Perth, and Hobart. Service extended later to provincial centres. The four larger capitals each have one ABC and three commercial stations. The other two have one ABC and two commercial stations. All Australian television stations must transmit Australian material for not less than 55 per cent. of the hours on the air. Transmission in colour began in 1975.

New Zealand television started in Auckland in 1959. By 1961, Christchurch and Wellington stations were operating. In 1974, New Zealand became the first of the Australasian countries to transmit colour television.

Indonesia commenced its television broadcasts in Jakarta at the time of the 1962 Asian Games. In Singapore, television service commenced in 1963. Later the same year, Malaysia followed with transmission from Kuala Lumpur.

Papua New Guinea had no television service at the end of 1974, but plans for its introduction were in the early discussion stage.

In the mid-1970s, all the countries in the area were interested in developing television transmission by satellite. Australia saw it as a means of reaching small pockets of population in remote areas. Indonesia was interested because it could never hope to provide service to its numerous islands by conventional methods. New Zealand, Papua New Guinea, and Malaysia saw it as a solution to the problems created by their mountainous terrain. Singapore hoped to cover sporting events by satellite.

Related Articles. See RADIO and TELEVISION in the main volumes, and their lists of related articles. See also the following articles in the Australasian volumes:

Aunt Daisy	Dyer, Bob	Postal Services
Bentley, Dick	Nichols, Joy	School of the Air

L. V. Bindley

Broken Hill is virtually an oasis in the semi-desert region of New South Wales. Trees and lawns grow among the buildings, even in the business centre of the city.

BROKEN BAY is the estuary of the Hawkesbury river, north of Sydney. It has three main branches, Pittwater, Cowan Creek, and Brisbane Water. In 1789, Governor Phillip and a party sailed up the river to Richmond Hill. The south bank of Broken Bay was first settled in 1794. A boatbuilding industry was established on Brisbane Water. The town of Gosford on Brisbane Water was first surveyed in 1839. The Peats Ferry road was built in 1854.

BROKEN HILL (pop. 29,743), a city in the far west of New South Wales, is one of the world's major mining centres. Mining companies in the town extract rich silver, lead, and zinc ores from the huge lode that runs beneath the city. Broken Hill lies in the Barrier Range, about 1,126 kilometres (700 miles) west of Sydney. Railway lines link the city with both Adelaide and Sydney. The surrounding countryside is virtually semi-desert. But a belt of parkland protects the city from dust storms.

The explorer Charles Sturt named the area Broken Hill in 1844. In 1883, a drover, Charles Rasp, discovered silver deposits on the site. A settlement grew up around the deposits. In 1884, prospectors discovered lead ores. In the following year, Rasp and some pastoralists of the district formed the Broken Hill Proprietary Company Ltd. to exploit the ores. The settlement prospered. It became a municipality in 1888, and a city in 1907.

See also Broken Hill Proprietary Company and Lead Mining in this volume; Silver Mining and Zinc Mining in the other Australasian volume.

BROKEN HILL PROPRIETARY COMPANY LTD. (B.H.P.) is the largest company in Australia. Together with its subsidiary and associated companies, it has virtually complete control of iron and steel production in the country. The B.H.P. complex consists of 16 companies. They convert iron ore into a wide range of iron and steel products—from ships to nails.

B.H.P.'s major iron and steel works are at Newcastle and Port Kembla, in New South Wales, and Whyalla, in South Australia. Together, these plants produce 4 million tonnes (4 million tons) of pig-iron and 5 million tonnes (5 million tons) of steel a year. A steelworks at Kwinana, near Perth, is designed to produce 457,000 tonnes (450,000 tons) of pig-iron and 335,000 tonnes (330,000 tons) of steel a year.

B.H.P. uses high-grade ore from the Middleback Ranges, in South Australia, and Yampi Sound and Koolyanobbing, in Western Australia. For fuel, it mines coal at Newcastle and Wollongong, in New South Wales. For other essential raw materials, it mines limestone at Rapid Bay and dolomite at Ardrossan, both in South Australia; magnesite at Fifield, in New South Wales; and manganese at Groote Eylandt, in the Northern Territory.

B.H.P. was formed in 1885 to exploit silver and lead ores at Broken Hill. In 1900, the company began mining iron-ore deposits in the Middleback Ranges to supply flux for its lead smelting works at Port Pirie, in South Australia. In 1915, it opened its first Newcastle steel mill, and increased iron-ore mining from the Middleback Ranges. It soon gained complete control over local iron and steel production. It developed rapidly, especially after World War II. Today, B.H.P. employs about 46,000 people throughout Australia.

See also Iron and Steel Industry and Lewis, Essington, in this volume.

BROLGAS are Australian cranes that are also known as Native Companions. They live in most coastal parts of Australia, except south-western and south-eastern Australia. They are graceful, silver grey birds. They stand about 1·2 metres (4 feet) tall and have a wingspan of about 2·1 metres (7 feet). Their call is usually a deep trumpet sound. Brolgas live in pairs or flocks on plains or swamps. Like other cranes, they perform dances. Brolgas eat insects, small animals, and plants. Sometimes they damage crops. Their nests are usually platforms of grass or reeds in swamps. Their eggs are creamy white with a few purplish-red spots.

Scientific Classification. Brolgas belong to the family *Gruidae*. They are genus *Grus*, species *G. rubicunda*.

BROMWICH, JOHN (1918-), was one of the finest Australian tennis players. He won the Australian singles championship in 1939 and 1946, as well as many state championships. He played in seven Davis Cup competitions for Australia between 1937 and 1950. Bromwich won the Wimbledon doubles championship twice—in 1948, with Frank Sedgman, and in 1950, with Adrian Quist. Between 1938 and 1950, he won the Australian doubles championship eight times. He was born in Sydney.

BRONHILL, JUNE (? -), an Australian soprano, won international acclaim in opera and operetta after winning the *Sun* aria contest in 1950. She was born at Broken Hill, in New South Wales, and named JUNE GOUGH. Later, she adopted the stage name *Bronhill,* which is a contraction of Broken Hill. The residents of Broken Hill raised money to help send her to London in 1952. She sang leading operatic roles at Sadler's Wells and Covent Garden from 1954 to 1960. After her success in *The Merry Widow,* she starred in other operettas and in musicals.

BROOKE, SIR JAMES (1803-1868), a British soldier, became ruler of Sarawak, a region in northwestern Borneo that is now part of Malaysia.

Brooke was born at Banaras in India. He joined the East India Company in 1825. In 1838, he made a private expedition to Borneo and began a series of campaigns against the Chinese pirates in the area. As a reward for his work, the Sultan of Borneo gave him the title Rajah of Sarawak. His family ruled Sarawak until 1941.

BROOKES, SIR NORMAN (1877-1968), a left-handed tennis player, won the Wimbledon singles championship in 1907 and 1914. He also won the Wimbledon doubles with the New Zealand player Anthony Wilding in 1907 and 1914. Between 1905 and 1920, he played in six Davis Cup competitions for Australia. In 1924, he won the Australian doubles championship with the Australian player James Anderson. From 1926 to 1955, he was president of the Lawn Tennis Association of Australia. He was born in Melbourne.

BROOKS, SIR DALLAS (1896-1966), a British statesman and soldier, was governor of Victoria from 1949 to 1963. His full name was REGINALD ALEXANDER DALLAS BROOKS. He was born at Cambridge, in England, and entered the Royal Marines in 1914. In 1915, he took part in the Gallipoli Campaign when serving on board H.M.S. *Repulse* (see WORLD WAR I [The Dardanelles] in the main volumes). In World War II, he served at the British Foreign Office, and directed political warfare. In 1946, he became chief of staff and, later, commandant-general of the Royal Marines. He retired from the marines in 1949. In 1961 and 1962, and again in 1964, he served as administrator of the Commonwealth of Australia.

BROOME (pop. 2,835) is a town on the northwestern coast of Western Australia. It stands on Roebuck Bay, more than 1,600 kilometres (1,000 miles) north-east of Perth. Broome is a principal port for the graziers who keep beef cattle in the region. Beef is also flown from Broome to major market centres. A large meat factory in the town provides work for many of the people. Broome is also an important pearling centre. Pearl divers extract pearl oysters from the waters off the coast for both pearls and pearl shell. Pearlers established a settlement on the site in 1883. During the early 1900s, Broome was the main supplier of pearl shell in Australia.

BROUGHTON, WILLIAM GRANT (1788-1853), was the first Anglican bishop in Australia. He landed in Sydney as an archdeacon in September, 1829, and immediately set about establishing an adequate school system for the colony. Because of his efforts, he is regarded as the founder of King's School, at Parramatta, near Sydney. In March, 1834, Broughton left Sydney for Britain to raise money for church and school needs in the colony. During his visit, he was nominated bishop of Australia. He returned in June, 1836. As bishop, Broughton opposed state aid to Roman Catholic schools, and encouraged church building, such as St. Andrew's Cathedral in Sydney. He also organized Australia into six dioceses, and he became bishop of Sydney in 1847. Broughton was born at Chatham, in Kent, and educated at Cambridge University.

BROWN SNAKES, to most Australians, are the *common brown snakes* of eastern Australia. They are among Australia's most dangerous snakes because of their extremely potent venom. Fortunately, they have relatively small fangs and venom glands, and their victims have a fair chance of recovery. Common brown snakes average about 1·5 metres (5 feet) in length, but some grow to more than 2·1 metres (7 feet). They vary in colour from light grey or brown to almost black above. Their bellies are cream or yellow, with distinctive orange spots or blotches. They feed on lizards and small mammals.

Scientific Classification. Common brown snakes are in the family *Elapidae.* They are genus *Pseudonaja,* species *P. textilis.*

BROWNE, THOMAS ALEXANDER. See BOLDREWOOD, ROLF, in this volume.

BROWNLEE, JOHN (1900-1969), an Australian baritone, became president of the Manhattan School of Music, in New York, in 1955. Brownlee first gained recognition for his singing at Ballarat, in Victoria. He soon became recognized as one of the world's leading opera singers. He sang with the Paris Grand Opera from 1927 to 1937. He also appeared at the Glyndebourne Mozart Festival in England from 1934 to 1936. From 1936 to 1959, he was principal baritone at the Metropolitan Opera House, in New York. He toured Australia in 1928, 1932, and 1952. He was born at Geelong, in Victoria, and named JOHN DONALD MACKENZIE BROWNLEE.

BROWNLOW MEDAL. See AUSTRALIAN RULES FOOTBALL (Awards for Players) in this volume.

BRUCE OF MELBOURNE, LORD (1883-1967), was prime minister of Australia from 1923 to 1929. He represented Australia so effectively at the League of Nations in 1921 that Australian politicians asked him to lead the coalition government formed after the 1923 federal election. He and his government were defeated in 1929. Later, Bruce went to England, where he was High Commissioner for Australia from 1933 to 1945. Bruce was born at Melbourne and named STANLEY MELBOURNE BRUCE.

BRUMBY is the name given in Australia to any horse that has escaped from domestication and run wild. Australian brumbies are of poor quality, but they are occasionally caught and broken in for stock work. Large numbers of them are killed for pet food. They are rounded up on motor bikes and driven into stock yards. From there, they are driven to knackeries, where they are slaughtered. Like all other horses, brumbies are not well adapted to the dry conditions of Australia.

BRUNEI

BRUNEI is a sultanate under British protection on the north-western coast of the island of Borneo. It is a small and infertile country. Its previously poor communications were transformed in 1972, when daily air services began to Singapore and the main towns of Malaysian Borneo. Its economy is flourishing as a result of the vast revenues obtained from off-shore oil and liquefied natural gas.

The Land. Brunei occupies a series of river basins in north-eastern Sarawak. It has about 160 kilometres (100 miles) of coastline on the South China Sea. For location, see MALAYSIA (colour maps) in the other Australasian volume. The Limbang basin, part of Sarawak, divides Brunei into two *enclaves* (see ENCLAVE in the main volumes).

The Life of the People. Out of every 100 people in Brunei, about 65 are Malays and about 23 are Chinese. Most of the people live in the districts of Belait and Brunei, in and around the towns of Bandar Seri, Begawan, Seria, and Kuala Belait.

History. Brunei was at its most powerful in the early 1500s under the fifth sultan, Bolkiah, sometimes called Nakoda Ragam. But, as a result of European competition and the growth of piracy, Brunei's trade and influence declined. By the end of the 1800s, the sultanate had been reduced to two small coastal enclaves. It accepted British protection in 1888. In 1906, the sultan agreed to the appointment of a British resident.

Brunei's fortunes changed when oil was discovered at Seria in 1929. Off-shore oil in greater quantities was developed from 1964. Brunei became one of the richest countries in Asia. Sir Omar Ali Saifuddin Sa'adul Khairi Waddin took the throne in 1950.

FACTS IN BRIEF

Largest Towns: Bandar Ser, Begawan, Seria, Kuala Belait.

Area: 5,788 square kilometres (2,226 square miles).

Population: 136,000.

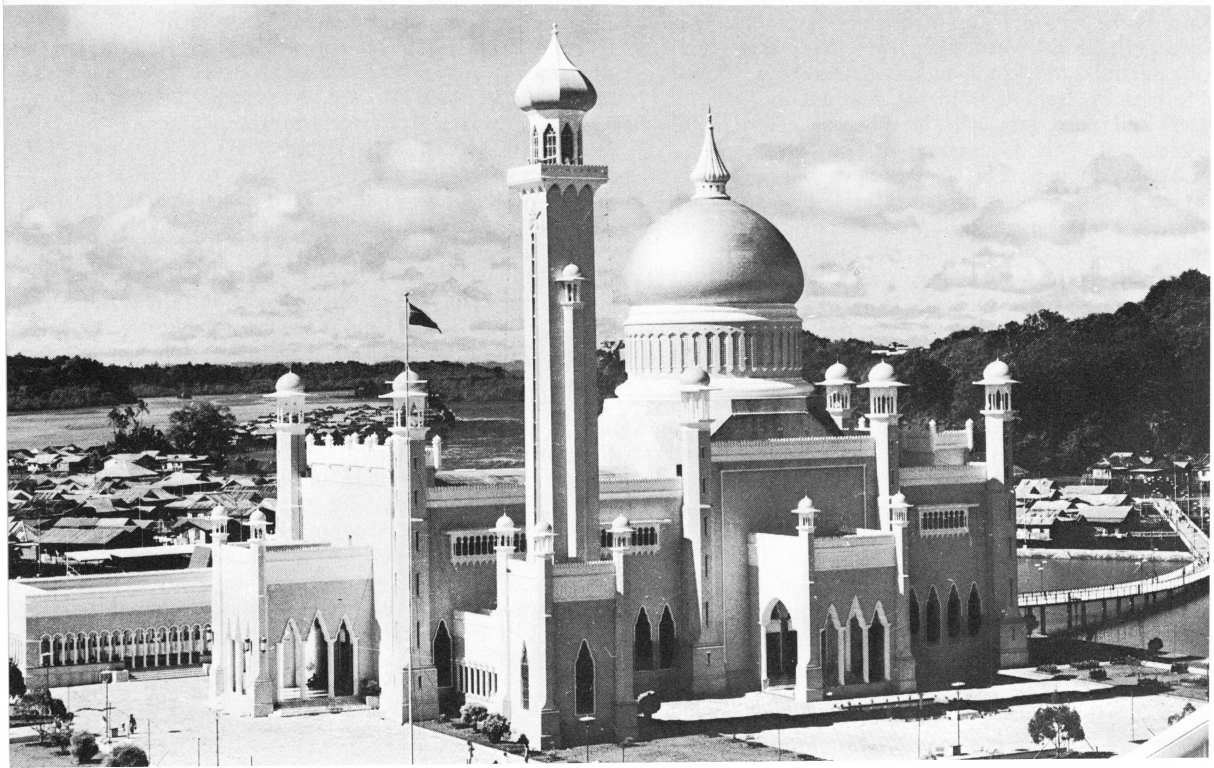
Chief Products: Oil, liquefied natural gas, rubber.

In 1959, he announced a new constitution, establishing an elected council. A high commissioner replaced the British resident. In 1962, 16 of the 33 seats in the Legislative Council were filled by popular election. Brunei became independent of Britain except in foreign affairs and defence. But a rebellion broke out when the sultan proposed that Brunei should join the federation of Malaysia. When British intervention restored order, he chose to remain outside the federation, but dissolved the council. He appointed an emergency council and governed Brunei with its advice and the advice of the high commissioner. In 1967, he abdicated in favour of his son, Hassamal Bolkiah.

BRUNNER, THOMAS (1821-1874), was a British explorer and surveyor who made the first extensive explorations in the West Coast region of the South Island of New Zealand. In 1846, he began his most famous expedition—travelling from Nelson to Titira Point, in southern Westland, and back to Nelson in a total of 550 days. He and his party suffered great hardship on this trip. The Royal Geographical Society awarded him a medal for this expedition.

BRYDONE, THOMAS (1837-1904), was the founder of the New Zealand frozen-meat export industry. He was responsible for the first shipment of frozen meat from New Zealand to London in 1882. He was born in Scotland, and settled in New Zealand in the 1860s. He established the Burnside freezing works in Otago. Brydone is also considered an agricultural pioneer, because he advocated the use of lime and artificial manures on farms.

The Mosque in the capital of Brunei is the largest of its kind in south-eastern Asia.



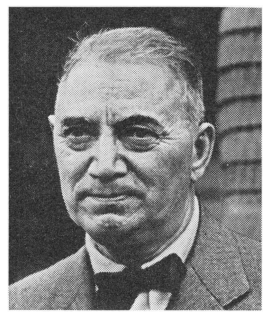
Buck-Jumping is one of the most exciting individual sports in the world. Rough-riders must be expert horsemen to stay on their horses even for a few seconds.

Sydney Morning Herald

BUCCANEER ARCHIPELAGO is a group of islands that lies at the entrance to Yampi Sound, on the north-western coast of Western Australia. The group consists of Byron, Cockatoo, Gibbings, Irving, and Macleay islands. Strong rip tides make the area dangerous for shipping.

The Dutch navigator Abel Tasman charted the group in 1644. In 1821, the navigator Phillip Parker King named the group in honour of William Dampier.

BUCK, SIR PETER (1880-1951), was a Maori leader and anthropologist. His name was Te Rangi Hiroa. From 1908 to 1914, he was a member of parliament. In 1912, he became minister of Maori affairs. He was born in northern Taranaki and educated at the University of Otago, where he studied medicine and chemistry. During World War I, he was a medical officer with the first Maori contingent. In 1927, he became an anthropologist at the Bishop Museum in Honolulu, in Hawaii.



New Zealand Herald

Sir Peter Buck

BUCK-JUMPING is a sport in which riders try to stay on bucking horses. In Australia, professional buck-jumpers, called *rough-riders,* can compete in about 100 main rodeos and shows that offer a total of more than $A 100,000 in prizes each year. The buck-jump is the main event of a rodeo. In this event, riders can hold onto only a single halter, and must stay on for at least 10 seconds.

Buck-jumpers compete over a full season for a title awarded by the Australian Rough-Riders' Association to the highest scoring rider at the end of the year. The rival Bushman's Carnival Association championship takes place at only one rodeo. Australian buck-jumpers also compete in the United States and Canada.

The New Zealand Rodeo Cowboy's Association established the rodeo as a popular sporting event. It held its first national rodeo in 1965.

BUCKLAND TABLELAND is an area of raised land in central eastern Queensland. It has an average height of about 600 metres (2,000 feet) above sea level. It is the source of several rivers, including the Nogoa, Warrego, Comet, Dawson, and Barcoo. Farmers on the tableland graze sheep and cattle and grow wheat and sorghum. Oil companies have discovered natural gas near Ravensbourne and Gilmore to the south-east and south-west of Blackall. The explorer Sir Thomas Mitchell first sighted Buckland Tableland from Mt. Owen on June 18, 1846. He named it after William Buckland, a British geologist.

BUCKLEY, WILLIAM (1780-1856), an escaped convict, lived with Aborigines in Victoria for 32 years. Many people believe that his story gave rise to the expression *Buckley's chance*—meaning little or no chance—because Buckley had little hope of returning to civilization. But some authorities prefer the explanation that the expression is based on the name of the Melbourne store Buckley and Nunn.

Buckley was born at Macclesfield in England. He was transported to Australia for receiving stolen goods. When Colonel David Collins tried unsuccessfully to establish a settlement at Port Phillip Bay in 1803, Buckley escaped. He was found by members of a party led by John Batman, the founder of Melbourne, in October, 1835. After 32 years, Buckley at first had difficulty remembering English. In 1837, he went to Tasmania, where he was married and held jobs as a porter and gatekeeper.

BUDGERIGARS are small parrots that live in inland and some coastal areas of Australia. They grow about 200 millimetres (8 inches) long. They are green, with yellow throats and foreheads, blue tails, and blue spots on their cheeks. "Budgies" make good pets, and birds of many other colours have been bred. Wild budgerigars live in flocks and migrate widely, feeding on seeds. They suffer heavily during droughts. They lay three to eight white eggs in holes in trees or fence posts.

Scientific Classification. Budgerigars belong to the parrot family, *Psittacidae*. They are genus *Melopsittacus*, species *M. undulatus*.

BUFFALOES roam wild in the Northern Territory of Australia. Experts estimate that there are more than 200,000 buffaloes wandering in the region between the Adelaide River and the Alligator River. They are hunted for sport, hides, and meat. They are also captured and raised on farms. Portable yards of tubular steel suspended just off the ground are used to trap the animals. Hand-feeding prepares the buffaloes for release into pasture-improved paddocks, where they are raised for meat.

Maurice Barlow, the commandant of Fort Dundas, on Melville Island, imported the first buffaloes from Timor in 1825. Later, buffaloes were also introduced to the Coburg Peninsula and Port Essington. After all these settlements were abandoned, the buffaloes flourished in wild herds. Hunting buffaloes for their hides began in the 1880s and thousands of hides were exported until the market declined in the mid-1950s. In 1959, abattoirs in Darwin began processing a few buffaloes for meat. Trapping the animals for farming began in 1970.

BUILDING SOCIETIES provide money mainly for building houses. Australia has about 2,600 building societies and New Zealand has about 70. More than 100 building societies in Australia and more than 50 in New Zealand are *permanent societies*. Most of them obtain their funds from the money invested by shareholders, as well as from banks and other lending institutions. The rest of the building societies in both countries are *terminating societies*. A terminating society is a co-operative that raises its funds mainly from membership subscriptions. It then makes loans to individual members for housing. A terminating society stops business after it has made a loan to every member of its society. Sometimes 20 years pass before this happens. Australian Starr-Bowkett terminating societies and all New Zealand terminating societies make interest-free loans to members. They hold ballots to decide the order in which members will obtain loans.

BUKA is the most northerly of the Solomon Islands. It is part of Papua New Guinea. The island of Buka lies across a narrow strait from the north end of Bougainville. The highest point on the island is about 396 metres (1,300 feet) above sea level in the mountainous southern area. The interior has dense forest and some areas of grassland. Several plantations and the main harbour, Queen Carola Harbour, are on the western coast. About 9,500 people live on Buka and nearby islands.

BUKITTINGGI (pop. 51,456) is a town on the Agam plateau, in the Bukit Barisan range of Sumatra. It lies about 80 kilometres (50 miles) from Padang, the capital of West Sumatra province. Bukittinggi is a trading centre for coffee, tea, and timber produced in the surrounding district. For location, see INDONESIA (colour maps) in this volume.

BULL, JOHN WRATHALL (1804-1885), an Australian pioneer, helped to revolutionize agriculture with his steam-driven threshing machine. He invented the machine in 1842. Bull was born the son of a parson in Kent, in England. He migrated to Australia in 1838, and became a successful farmer. In 1852, after losing much of his money in a financial crisis, he went to the Victorian gold-fields in the hope of finding gold. But he soon returned to South Australia to manage a large property. He later established one of the first vineyards in the colony.

BULL ANTS include several *species* (kinds) of ants in Australia. Most of them are large. The winged females of some species grow as much as an inch long. Bull ants can inflict painful bites with their long, conspicuous toothed jaws. They can also sting. They are fearless and will attack on occasion. Only a few hundred ants live in each nest. They make their nests in the ground, many of them at the bases of trees or stumps. The worker ants feed their grubs on animal remains, which often consist of other insects. Scientists consider bull ants to be among the most primitive ants. They do not have social structures as complex as the more advanced species.

Scientific Classification. Bull ants belong to the ant family, *Formicidae*. They make up genus *Myrmecia*.

BULL ROARER is a propeller-shaped piece of hardwood made by the Australian Aborigines. When swung on the end of a cord, it spins at a great speed and produces a loud moaning sound. The Aborigines used bull roarers in their secret ceremonies. Women and children accepted their sound as a warning to keep away from the sacred ceremonial grounds. Aborigines in parts of Arnhem Land in northern Australia swung as many as 20 bull roarers at the same time as a climax to certain ceremonies. Bull roarers range from a few centimetres to more than 0·3 metres (1 foot) in length. The Aborigines cover many of them with grooved or painted decorations.

BULLER is a river in the West Coast region of the South Island of New Zealand. It flows westward from Lake Rotoiti for about 170 kilometres (105 miles) before entering the sea at Westport. The river is named after the pioneer Charles Buller.

BULLETIN, THE, is an Australian weekly magazine. During the 1890s, it became an eloquent spokesman for forceful Australianism. It influenced the most important literary swing in Australian literature. When it was first published, in 1880, *The Bulletin* concentrated on social and political journalism. It advocated Australia for Australians, campaigned for the federation of the Australian colonies, and attacked what it called overseas economic exploitation of the country. It then specialized in publishing literary interpretations of Australian life. It concentrated on short stories, especially anecdotes from folklore and stories of the countryside. Under such

men as J. F. Archibald, its co-founder and editor, *The Bulletin* fostered many writers and artists. Henry Lawson and Banjo Paterson were among writers who benefited from this patronage.

BUNBURY (pop. 17,762) is a town on Geographe Bay in Western Australia. It lies about 185 kilometres (115 miles) south of Perth. The town is an important regional centre and port for the south-western part of the state. Farming in the surrounding districts provides dairy products, fruit, wheat, and wool. The townspeople in Bunbury work in a superphosphate factory, an ilmenite plant, other industries in the area, and mining. Bunbury became a town in 1841.

BUNDABERG (pop. 27,394) is a city in south-eastern Queensland. It lies about 322 kilometres (200 miles) north of Brisbane, on the banks of the Burnett River. Bundaberg is the centre of the southern sugar-cane belt. Much of the city's industry is concerned with processing sugar. Other important industries include distilling rum, making bricks, sawmilling, shipbuilding, manufacturing cane harvesters, and growing tobacco and vegetables. Europeans searching for timber arrived on the site in 1866 and settled there in 1867. Sugar planters were next to settle there. Bundaberg became a town in 1881 and a city in 1913.

BUNTON, HAYDN (1911-1955), was one of the greatest Australian Rules footballers. He was a master of intelligent disposal of the ball, and played brilliantly in many positions, including rover, centre, and half forward flank. Bunton won the Victorian Brownlow Medal for the best and fairest player in 1931, 1932, and 1935. He also won the Sandover Medal of Western Australia in 1938, 1939, and 1941. He was born at Albury, in New South Wales.

BUNYA CEREMONY was a periodic gathering of the Aborigines of south-east Queensland in the Bunya Mountains. Tribes would assemble to feast for weeks on the large, rich-flavoured seeds or nuts of the bunya-bunya pine. They gathered the seeds and roasted them on their campfires. Despite its name, the bunya ceremony was not a single ceremony, but many. During the feast, tribes would settle any disputes. The men would initiate the boys into full membership in their tribes. And, through rituals and ceremonies, the tribesmen would re-enact the events of the Dreamtime. Observers reported that Aborigines taking part in the ceremony became unusually fat and healthy-looking because of the highly nutritious character of the pine nuts.

BUNYIP is a legendary Australian animal that, according to the Australian Aborigines, lives in water-holes. The bunyip is probably mythical. Scholars point out that the Aborigines first mentioned bunyips about the same time that European settlers imported cattle into Australia. They suggest that the Aborigines became frightened at the bellowing of cattle caught in the mud near water-holes. Several Europeans claim to have sighted bunyips at such places as Lake George and Lake Illawarra, in New South Wales.

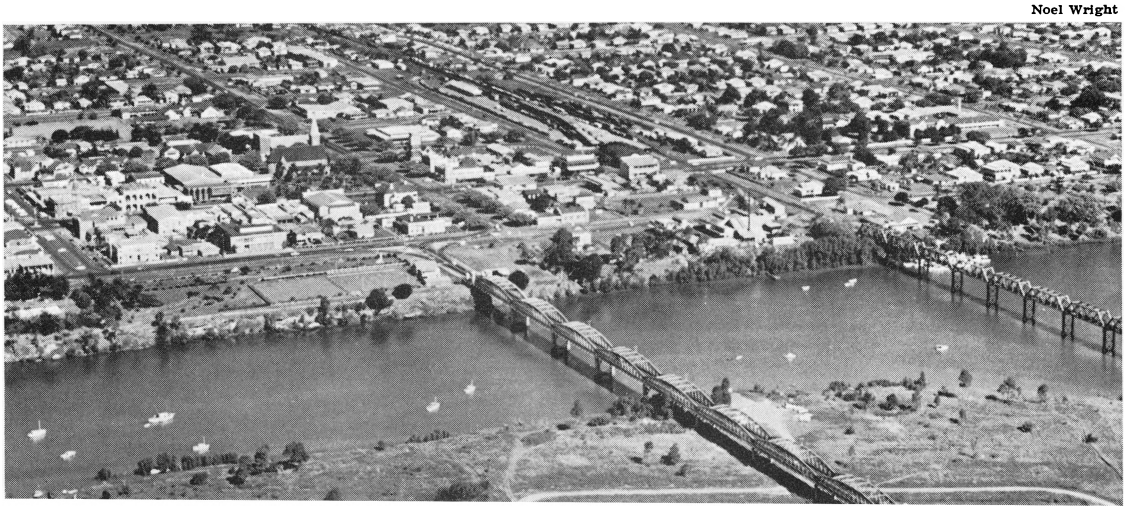
BURDEKIN RIVER PROJECT is a scheme to control floods and to use the waters of the Burdekin River in northern Queensland for irrigation.

It has three irrigation areas—Clare, Millaroo, and Dalbeg—and two storage reservoirs. The Gorge weir near Dalbeg, which has a capacity of 9,460,000 cubic metres (7,670 acre feet), was completed in 1953. The Blue Valley weir, with a capacity of 3,145,425 cubic metres (2,550 acre feet), was completed in 1963. The irrigated areas produce sugar cane, tobacco, beans, peas, and maize.

BUREAU OF AGRICULTURAL ECONOMICS is a research organization set up within the Australian Commonwealth Public Service. It investigates and reports on the economic aspects of trends in the production, marketing, and use of agricultural products both within Australia and overseas. It also conducts wool and beef research.

BUREAU OF MINERAL RESOURCES is an organization within the Department of National Development. It is concerned with developing the possible mineral resources of Australia and its territories. It gives interpretations of results and advice on all aspects of the mineral economy and all aspects of applied geology and geophysics. The bureau maintains laboratories in Canberra and Darwin, a volcanological observatory at Rabaul, and geophysical observatories at Melbourne, Toolangi, Mundaring, Darwin, Port Moresby, Mawson and Wilkes in Antarctica, and Macquarie Island.

Bundaberg, in south-eastern Queensland, lies on the Burnett River. Road and railway bridges link the north side with the main part of the city, which lies south of the river.
Noel Wright



BURKE, ROBERT O'HARA

BURKE, ROBERT O'HARA (1821-1861), led the tragic expedition that first crossed the Australian continent from south to north. Burke and 17 other men set out from Melbourne in August, 1860. Leaving some men at Menindee and others at Cooper's Creek, he and three companions pushed on across the continent. They reached the dense mangrove swamps near the mouth of the Flinders River on the Gulf of Carpentaria in February, 1861. But, on the return journey, Burke and two others died. Ironically, the parties searching for Burke probably added more to the knowledge of the interior than Burke and his group did.

Early Life. Burke was born at St. Clerans, in county Galway, in Ireland. He was educated in Belgium and served eight years in the Austrian army, attaining the rank of captain. In 1848, he joined the Irish constabulary. He migrated from Ireland to Tasmania in 1853, and later went to Victoria. There, he became an inspector of police in the Ovens and Beechworth gold-mining districts.

Planning the Expedition. The Exploration Committee of the Royal Society of Victoria wanted to sponsor an expedition to the Gulf of Carpentaria. The expedition had two main objectives: to explore the country between Cooper's Creek and the Gulf of Carpentaria and, from a base camp on the creek, to explore north-eastwards and south-westwards along its course. Ludwig Leichhardt had explored the coast of the Gulf of Carpentaria in 1845, but had not gone far inland (see LEICHHARDT, LUDWIG, in this volume). Charles Sturt had passed west of the area proposed for the base camp, and Augustus Gregory had passed east of it (see GREGORY [Sir Augustus Charles Gregory] in this volume; STURT, CHARLES, in the other Australasian volume).

The Exploration Committee chose Burke to lead its *Victorian Exploring Expedition.* It appointed George James Landells as second-in-command and William John Wills as surveyor and astronomer. In addition, it chose Herman Beckler, a medical officer and botanist; Ludwig Becker, an artist and naturalist; a foreman; nine assistants, including John King; and three Indian sepoys. Landells had bought 25 camels in India for the expedition, and had brought the sepoys to manage them.

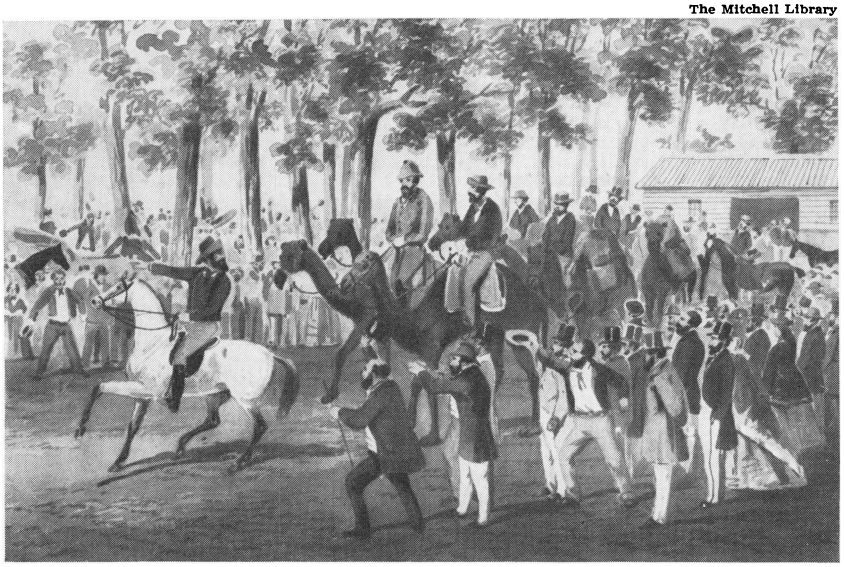
The Route North. The expedition left Melbourne on Aug. 20, 1860. Before the group reached unexplored country, Landells resigned because of disagreements with Burke. Wills became second-in-command. The expedition reached Menindee, on the Darling River, on September 23. There, Burke engaged two more members, William Wright and Charles Gray. He set up a depot at Menindee and left most of the group there under Beckler. Wright then led Burke to Cooper's Creek. They arrived at the creek on November 11, and Burke selected a site for the base camp. He and seven others remained there, and Wright went back to the depot to bring up Beckler and the rest.

After waiting six weeks for Wright and Beckler, Burke grew impatient. Several thunderstorms in the area assured a sufficient supply of water, and he was anxious to move. He decided to make a dash for the northern coast, and chose Wills, John King, and Gray to accompany him. The four men left William Brahe and three other men at the base camp and set out on December 16. Burke instructed Brahe to remain there until the exploring party returned, "within the next three months at the latest".

The four men reached the tidal waters of the Flinders River on the Gulf of Carpentaria on Feb. 9, 1861. They did not actually see the waters of the gulf, because they could not cut through the dense swampy jungle. But, for all practical purposes, they had crossed the Australian continent.

The Return Journey. Burke and his three companions started back to Cooper's Creek on February 13. Gray died of dysentery on April 17, and the other three reached Cooper's Creek on April 21. But Brahe and the others were not there. They had stayed more than four months, and had departed for

The Mitchell Library



Australian News

Robert O'Hara Burke led a well-equipped but ill-fated expedition from Melbourne on August 20, 1860. The departure of the party caused much excitement among the Victorian colonists.

Menindee that same morning, less than seven hours before Burke, Wills, and King returned. They left behind them only a small stock of provisions under a tree marked "Dig, 21st April, 1861".

Burke thought that the closest source of supplies was a cattle station near Mt. Hopeless, in South Australia, only 240 kilometres (150 miles) away. Instead of following Brahe, the three men left the base camp on April 23 for Mt. Hopeless.

Brahe and his small band from the base camp arrived at Menindee on April 28 to report that they had had no sight of Burke. Brahe and Wright went north again to the base camp. They reached it on May 8, stayed for only a quarter of an hour, and left no provisions for the explorers. They then went south again to Menindee. Brahe continued on to Melbourne soon afterwards.

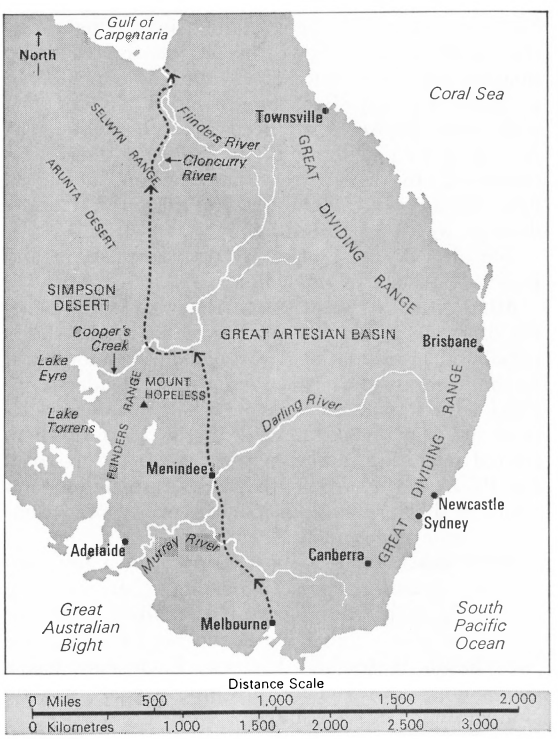
Wills, leaving Burke and King, returned to the base camp on May 31. Brahe and Wright had left no indication that they had visited the spot on May 8. Wills left a note asking for clothing and provisions to be sent as soon as possible, then rejoined Burke and King. The three men survived several weeks on nardoo seed and fish provided by Aborigines. Burke died on June 28, and Wills about the same time. King lived on with the Aborigines.

Relief Expeditions set out to find the explorers soon after Brahe reached Melbourne. One expedition, led by Alfred William Howitt, found King on September 15. Howitt's group buried the remains of Wills on September 18, and those of Burke on September 21. They arrived in Melbourne on November 28. The Exploration Committee immediately sent Howitt back to recover the bodies of Burke and Wills. He returned to Melbourne on Dec. 28, 1862, with the bodies. After a public funeral on Jan. 1, 1863, the bodies were buried in Melbourne General Cemetery on January 21. King died nine years later, on Jan. 15, 1872, at the age of 31.

A public enquiry, the Burke and Wills Commission, was appointed on Nov. 12, 1861, to determine what had gone wrong. The commission found that Brahe, Wright, and the Exploration Committee all shared some of the blame with Burke.

See also History of Australia (Further Exploration and Development) in this volume; Wills, W. J., in the other Australasian volume.

THE EXPEDITION OF BURKE AND WILLS



BURLEIGH HEADS is a town on Queensland's Gold Coast. It is a tourist resort about 96 kilometres (60 miles) from Brisbane. The zoologist David Fleay established a fauna reserve there with many Australian animals. The reserve is a tourist attraction and a centre for research.

BURNET, SIR MACFARLANE. See Burnet, Sir Macfarlane, in the main volumes.

BURNETT is a river in Queensland. It rises in the Burnett Ranges in south-eastern Queensland and flows through Bundaberg before reaching the Pacific Ocean at Burnett Heads. For location, see Queensland (map) in the other Australasian volume.

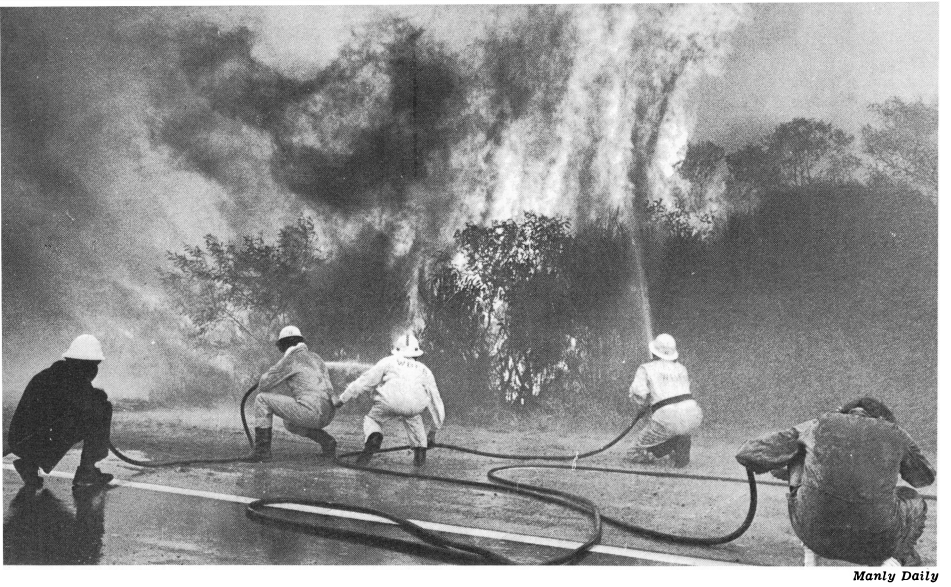
BURNIE (pop. 19,943) is an important town and deep-water port on the northern coast of Tasmania. It lies on Emu Bay. Burnie is 153 kilometres (95 miles) by road from Launceston. The town is an agricultural and dairying centre for the rich farm district around it. Paper and plywood mills and a chemical factory provide work for many local people. Copper, lead, and zinc ores from Rosebery are shipped from Burnie for processing at Risdon, near Hobart.

BURRA (pop. 1,278) is a town in South Australia 160 kilometres (99·5 miles) north of Adelaide. Copper was discovered near the Burra-Burra Creek in 1845 and a copper smelting works was set up in 1849. At its peak, the mine supported 5,000 people, many from Cornwall. About 2,000 people lived in underground dugouts in the banks of the Burra-Burra Creek. Mining ceased in 1877. In 1971, mining for low grade ore began again. The average rainfall is 450 millimetres (17·7 inches).

BURRENDONG DAM blocks the Macquarie River at Wellington, in New South Wales. The dam is 67 metres (220 feet) high. It can store 1,189 million cubic metres (964,000 acre-feet) of water. It was built to control flooding and to provide irrigation in the Dubbo area.

BURRINJUCK DAM impounds waters of the Murrumbidgee River near Yass, in New South Wales. The dam is 78 metres (225 feet) high and 347 metres (1,140 feet) long. It has a storage capacity of 1,032 million cubic metres (837,000 acre-feet) of water and a lake surface area of 5,666 hectares (14,000 acres). Burrinjuck Dam supplies water to the Murrumbidgee Irrigation Area. The dam and its hydroelectric power works were completed in 1956.

BUSBY, JAMES. See History of New Zealand (Kororareka) in this volume.



Bush Fires threaten lives and damage property in bushland areas close to large cities such as Sydney. Volunteer bush fire brigades fight many blazes in Australia each summer, especially in country areas.

Manly Daily

BUSH FIRES are the large forest, grass, and scrub fires that threaten lives and property in Australia each year.

The Fire Season varies throughout the continent. In the tropical north, more fires occur in the dry winter and spring than in the summer monsoon season. In southern Queensland and New South Wales, the fire danger usually peaks in spring, but may extend into summer. In southern regions, the worst fires usually break out during the dry summer months.

Causes of Bush Fires. Bush fires can start in many ways. Lightning causes more fires than most people realize. But man is responsible for most bush fires. Some man-made fires are lit deliberately. But most bush fires are caused accidentally.

In some cases a match or an existing fire starts the bushfire. In other cases new fires are started by sparks or airborne firebrands. There are several main accidental causes of fires. Many farmers light fires to clear land of scrub and grass or to make firebreaks. These burning-off operations sometimes get out of control and cause bush fires. Trains, cars, and farm machinery with faulty exhaust systems sometimes send out sparks that can cause fires. Sparks from fires lit on garbage dumps, sawmill waste heaps, and kilns are another danger. Camp fires, barbeques, and rubbish fires in the backyards of houses can cause bushfires. Smokers cause many fires. Bonfires, fireworks, and children playing with matches are other causes. Electrical faults in power lines also cause some fires.

Fighting Bush Fires is done mainly with hand tools and vehicles carrying pumps and small amounts of water. Fire fighters use heavy machinery such as water tankers and bulldozers on some larger fires.

Aeroplanes employed to detect fires are sometimes used to transport fire fighters and even to drop water and chemicals on fires. Helicopters are used to deliver men to the edges of fires in rugged country. Forest services and other government agencies have about 3,000 fire fighters available to protect public lands. The 6,500 volunteer bush fire brigades have more than 200,000 members who fight fires in other country areas.

The Effects of Bush Fires are often felt for many years. Even if trees are not killed, their growth rates can be seriously affected. The removal of surface vegetation may be followed by erosion. Most animals are able to escape from slow-moving fires. But it may take several years before the number of animals returns to normal after bad fires.

History. Most of Australia's largest fires have been grass fires. For example, a series of grass fires covered areas totalling about 2 million hectares (5 million acres) in New South Wales in 1926, 1 million hectares (3 million acres) in Victoria in 1944, and 3 million hectares (8 million acres) in Queensland in 1950. The worst bush fires in the 1900s occurred in Victoria and Tasmania. Jan. 13, 1939, is remembered as Black Friday in Victoria, where 71 people died in a single day during the worst fire weather it seems possible to imagine. In Tasmania, Feb. 7, 1967, is remembered as Black Tuesday. Bush fires invaded Hobart on a scale never before experienced in an Australian city. A total of 62 people died, and 1,400 buildings were destroyed. In these two instances alone, about 80 fires spread over about 250,000 hectares, causing damage worth $A 50 million.

See also Black Friday; Black Thursday; and Black Tuesday in this volume.

BUSH NURSING ASSOCIATIONS provide the benefits of home nursing to people living in the thinly populated areas of the Australian bush or outback. Each nurse covers a specified district, and is supplied with mobile equipment. The nursing associations are run on a state-wide basis. Most of them started operating in the period from 1911 to 1914. In 1974, the New South Wales association announced that it would be handing over its functions to the state government.

BUSH-WALKING is a sport enjoyed by many Australians. *Orienteering* is an off-shoot. Members are trained in map reading, compass reading, and first aid. The most active states in bush-walking are New South Wales and Victoria. Each state has a controlling body. There are no awards and no competitions between states.

BUSHRANGERS were bandits who roamed the Australian countryside during the 1800s. Penal and social conditions may have influenced men to turn to bushranging. But there is little evidence that any of them ever showed any previous desire to become useful citizens, even when given a chance. Most of them belonged to the section of the population which resorts to criminal violence in any age.

The most notorious of these criminals in Australia operated in Tasmania, Victoria, and New South Wales. There were two distinct periods. The first group of bushrangers were escaped convicts who operated between 1788 and 1840. A second period of bushranging began with the start of the gold rushes in 1851 and ended about 1880.

The extremely harsh conditions in Van Diemen's Land (now Tasmania) identified most of the bushrangers in that colony more as desperate men than as professional bandits. Most of them were escaped convicts who had to rob to live.

Michael Howe (1787-1818) was unusual because he had already been sentenced for highway robbery in England before he was transported. He could have worked on a farm for the comparatively short period required to gain a *ticket of leave*—a type of parole. But he immediately escaped and took to bushranging.

Matthew Brady (1799-1826), a convicted forger, was a fairly typical bushranger of this period. The local free settlers had learned from experience to treat their convict servants well in order to encourage them not to run away. Despite such treatment, Brady escaped. He eventually took over a 25-member gang which became known as *Brady's mob*. He was a resourceful bandit. But he was no match for Governor Arthur, who kept increasing the rewards. Brady was caught and hanged in 1826. By 1836, the local bushrangers had virtually been wiped out.

Jack Donahoe (1806-1830) was a bushranger who, like the British highwayman Dick Turpin, became a legend, even though in real life he was a vicious criminal who did not deserve to be regarded as a popular hero. His exploits are recorded in the ballad "Bold Jack Donahoe" which was later incorporated in the song "The Wild Colonial Boy".

Captain Melville (1822-1857) was one of the first bushrangers to operate when the Victorian gold rushes began in 1851. His main targets were gold diggers at work on isolated claims and settlers' homesteads with little protection.

Frank Gardiner (1830-1890) was one of the first locally born criminals to become famous as a bushranger. He was also one of the few who was wise enough to know when to quit.

Ben Hall (1837-1865) was unique among Australian bushrangers, because he was comparatively well established on a cattle station at Grenfell, New South Wales, before embarking on a career of crime. He could not advance the usual excuse of such criminals that oppression and the lack of money to buy land had driven him to crime.

Captain Thunderbolt was another criminal praised as gallant, beloved, and brave. In fact, he was always a minor criminal who found, like many others, that it was safer to rob comparatively poor people such as tollkeepers, hawkers, and small settlers. His last hold-up involved taking $6 from a hawker.

Harry Power (? -1891), an Englishman, operated in north-eastern Victoria. With the youthful Ned Kelly as assistant, Power gained the reputation of being a gentleman who was considerate to ladies. The reputation was probably undeserved. He was a horse thief who had murdered a trooper. Released from prison in 1885, Power spent the last six years of his life as a travelling showman appearing as the last of the bushrangers.

Ned Kelly (1854-1880) and his gang of bushrangers came on the scene in 1878, when conditions for this type of banditry had passed. Better communications and closer settlement had tipped the scales in favour of the forces of law and order.

The following bushrangers have separate biographies in the Australasian volumes of WORLD BOOK:

Brady, Matthew
Byrne, Joe
Cash, Martin
Donahoe, Jack
Gardiner, Frank
Hall, Ben
Kelly, Ned
Moonlight, Captain
Power, Harry
Thunderbolt, Captain

Mitchell Library

Bushrangers attacking the mail coach were depicted in this sketch by the artist S. T. Gill to illustrate bushranging in New South Wales in 1864. Holdups of this type were common.

BUSSELL, GRACE (1860-1935), heroically rode a horse into raging surf to rescue passengers on the shipwrecked steamer *Georgette*. The ship, with a crew of 22 and 50 passengers, became disabled and drifted onto rocks near the Bussell farm at Busselton, Western Australia.

Eight persons were drowned when a lifeboat capsized. A gig and another lifeboat reached shore with some survivors. Sam Isaacs, a stockman, and the 16-year-old Grace rode repeatedly into the surf for four hours until they had rescued the remaining passengers from the ship. Grace was awarded the Royal Humane Society medal in 1878.

Grace Bussell was born near Busselton. She was married to Frederick Drake-Brockman, who later became Surveyor General of Western Australia.

BUTCHERBIRD is the name given in Australia to birds that resemble shrikes, the "butcherbirds" of Europe. All butcherbirds impale their prey on twigs or thorns and keep it in this way to eat later. They eat insects, mice, other birds, and reptiles. Australian butcherbirds live in all parts of the country and are among its finest songbirds. They are about 30 centimetres (12 inches) long and have strong hooked beaks. Their plumage is mainly black and white, or grey. They lay three or four eggs in cup-shaped nests.

Scientific Classification. Australian butcherbirds belong to the family *Cractidae*. They form genus *Cracticus*.

BUTLER, SAMUEL. See LITERATURE OF NEW ZEALAND (Non-Fiction) in this volume.

BUTTERFLIES. See INSECTS in this volume.

BUVELOT, LOUIS (1814-1888), is considered by critics to be the founder of Australian landscape painting. ABRAHAM LOUIS BUVELOT was born and trained in Switzerland and worked for 18 years in Brazil. He migrated to Victoria in 1865 and set up business in Melbourne as a photographer. He was rescued from obscurity by the leading critic of the day, James Smith (1820-1910). His work later influenced the group of Australian landscape painters known as the Heidelberg School. See also ARTS OF AUSTRALIA (picture) in this volume.

BUZO, ALEXANDER (1945-), an Australian dramatist, wrote the play *Macquarie,* which explores the character of the real Governor Macquarie as opposed to the historical image. Buzo is one of the few Australian dramatists to attract attention in the United States. His plays are often savage and controversial, and are presented in crisp dramatic dialogue which is completely explicit in meaning. His work often reflects his distress at the cruelty of modern society.

BYRNE, JOE (1857-1880), was a member of Ned Kelly's gang of bushrangers. On Oct. 26, 1878, the gang ambushed and murdered three policemen at Stringybark Creek near Mansfield. Byrne did not commit murder on that occasion but on June 26, 1880, he shot dead his former mate, Aaron Sherritt, because he suspected Sherritt was a police informer. Less than two days later, Byrne was killed in the shooting duel between the Kelly gang and the police at Glenrowan. Byrne was born on the Woolshed goldfields in Victoria.

BYRON BAY (pop. 2,370) is a town on the north coast of New South Wales, 882 kilometres (510 miles) by rail from Sydney, and 65 kilometres (40 miles) south of the border between New South Wales and Queensland. Professional trap-fishing and prawning are important activities. The district produces bananas, pineapples, timber, chickens, beef cattle, and dairy products. Industries include mineral sand mining, a small goods and bacon factory, a meatworks, and a brickworks. Nearby, Cape Byron is the most easterly point on the Australian mainland. It rises 108 metres (354 feet) above the sea. It has Australia's most powerful lighthouse, visible for over 40 kilometres (25 miles).

CADMAN'S COTTAGE is one of the oldest buildings in Sydney. It was erected at the water's edge on the western side of Sydney Cove in 1813 to house the coxswain and crew of the governor's gig. It was a two-storeyed, four-roomed stone cottage with a roof of thatch, tiles, or shingles. John Cadman, a pardoned ex-convict, lived in the cottage for 29 years. He was appointed Governor Macquarie's coxswain and later superintendent of government boats. The cottage, with a galvanized roof, is now about 100 metres (300 feet) from the shore.

CAHILL, JOHN JOSEPH (1891-1959), was premier of New South Wales from 1952 to 1959. People remember him best for passing legislation concerning the powers of local governments and for encouraging public works, such as the Sydney Opera House. He survived many political crises over such issues as local government and public transport. He was born in Sydney, and entered the state parliament in 1925. He became deputy premier in 1949.

CAIRNS (pop. 29,288), a city in northern Queensland, lies on Trinity Bay, more than 1,600 kilometres (1,000 miles) north of Brisbane. It is a prosperous agricultural centre and tourist resort. Softwood forests grow on the nearby mountains, where the soil is also suitable for growing sugar-cane. Sugar and timber are the main local products. Cairns also exports butter, fertilizer, maize, meat, tin, and tobacco. The city developed around tin and gold mines after 1876. Sugar was first grown in the area in 1886.

CAIRNS, JAMES (1914-), a member of the Australian Labor party, became deputy prime minister in 1974. JAMES FORD CAIRNS was born in Melbourne. He left school at the age of 15. He worked as a policeman and later studied at Melbourne and Oxford universities. He was elected to the House of Representatives for Yarra in 1955. He became a controversial figure because of his opposition to the Vietnam war in the 1960s. He became minister for overseas trade and secondary industry in 1972.

CALLIDE VALLEY is situated in central Queensland, about 96 kilometres (60 miles) south-west of the port of Gladstone. Biloela is the main centre. Farmers in the valley grow cotton and wheat. Open-cut mines in the Callide coalfields produce sub-bituminous coal for use in the Calcap power station. Total reserves are estimated at 280 million tonnes (280 million tons).

CALWELL, ARTHUR (1896-1973), was leader of the Australian Labor party (ALP) from 1960 to 1967. In the 1961 general elections, he came close to being prime minister, when his party reduced the Liberal-Country coalition majority to one seat.

Arthur Augustus Calwell was born in Melbourne and educated at Christian Brothers' College there. He joined the ALP in 1915 and became president of the Victorian branch in 1931. In 1940, he was elected to the federal parliament for Melbourne. He became minister for information in 1943 and minister of immigration in 1945. He held both positions until 1949 and helped to establish Australia's postwar immigration scheme. He was deputy leader of the ALP from 1951 to 1960.

CAMELS roam wild in central Australia in large numbers. An export business has developed because Australian camels are free from diseases that prevent overseas camels breeding in zoos.

The first *dromedary* (one-humped) camel was imported into Australia in 1840. This ill-fated animal took part in an expedition into northern South Australia. It was destroyed after accidentally causing its owner's death. In the first large-scale importation, in 1860, 24 camels and three Afghan camel drivers were imported from Karachi for the Burke and Wills expedition. See Burke, Robert O'Hara, in this volume.

Later large numbers of camels were imported for exploration and station work in the arid interior. They played a part in building the overland telegraph line and the transcontinental railway. After World War II, they were still used as personal transport by a few people.

CAMP COVE was the site of Governor Phillip's first landing within Port Jackson when he explored Sydney Harbour from Botany Bay in 1788. An obelisk and tablet now commemorate the landing. The name Camp Cove has been used from the earliest years of settlement, when harbour pilots were stationed there. The cove has a sandy beach and provides a good shelter for small boats.

CAMPBELL, DAVID (1915-), an Australian poet, became known for his lyrics of the countryside. David Ian Watt Campbell was born at Adelong, in New South Wales, and educated at The King's School, Parramatta, and Cambridge, where he played football for England. During World War II, he was a pilot in the Royal Australian Air Force, winning the Distinguished Flying Cross and bar. After the war, he farmed properties in south-eastern New South Wales. His books of verse include *Speak with the Sun* (1949), *The Miracle of Mullion Hill* (1956), *Selected Poems (1942-1968)* (1968), and *The Branch of Dodona* (1970). Besides those having country themes, his poems are also on love and war, or are witty and satirical commentaries on life.

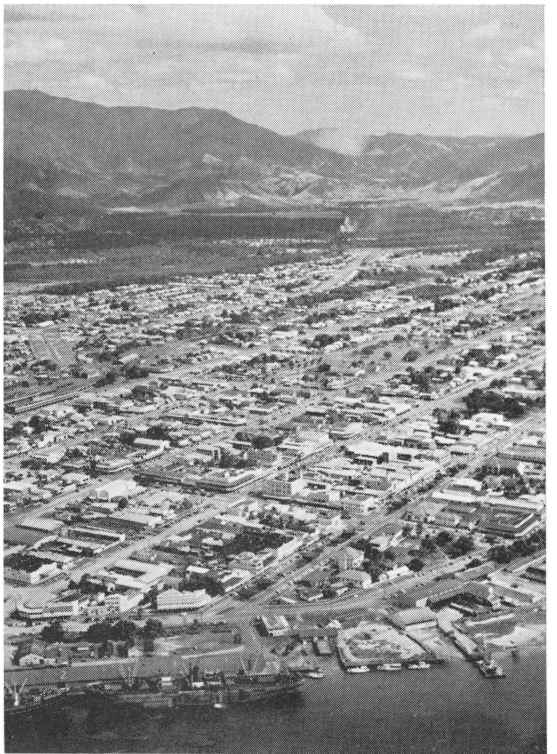
CAMPBELL, SIR JOHN LOGAN (1817-1912), was one of the first Europeans to settle in Auckland, where he established the first retail shop. He became a successful businessman and a member of the original boards of many business, cultural, educational, and government organizations. He gave to Auckland the area that is now Cornwall Park. He became known as the "father of Auckland". Campbell was born in Scotland and studied medicine there. He was superintendent of Auckland province from 1855 to 1856, and mayor of the city in 1901.

CAMPBELL, ROBERT (1769-1846), was a merchant, pastoralist, politician, and philanthropist. He was born at Greenock, in Scotland, and arrived in Sydney in 1798 to open a branch of his firm. His business at Dawes Point expanded rapidly. Campbell received large grants of land in the district where Canberra was later established. His home there, called "Duntroon," still exists as part of the Royal Military College. He was a member of the Legislative Council from 1815 to 1843.

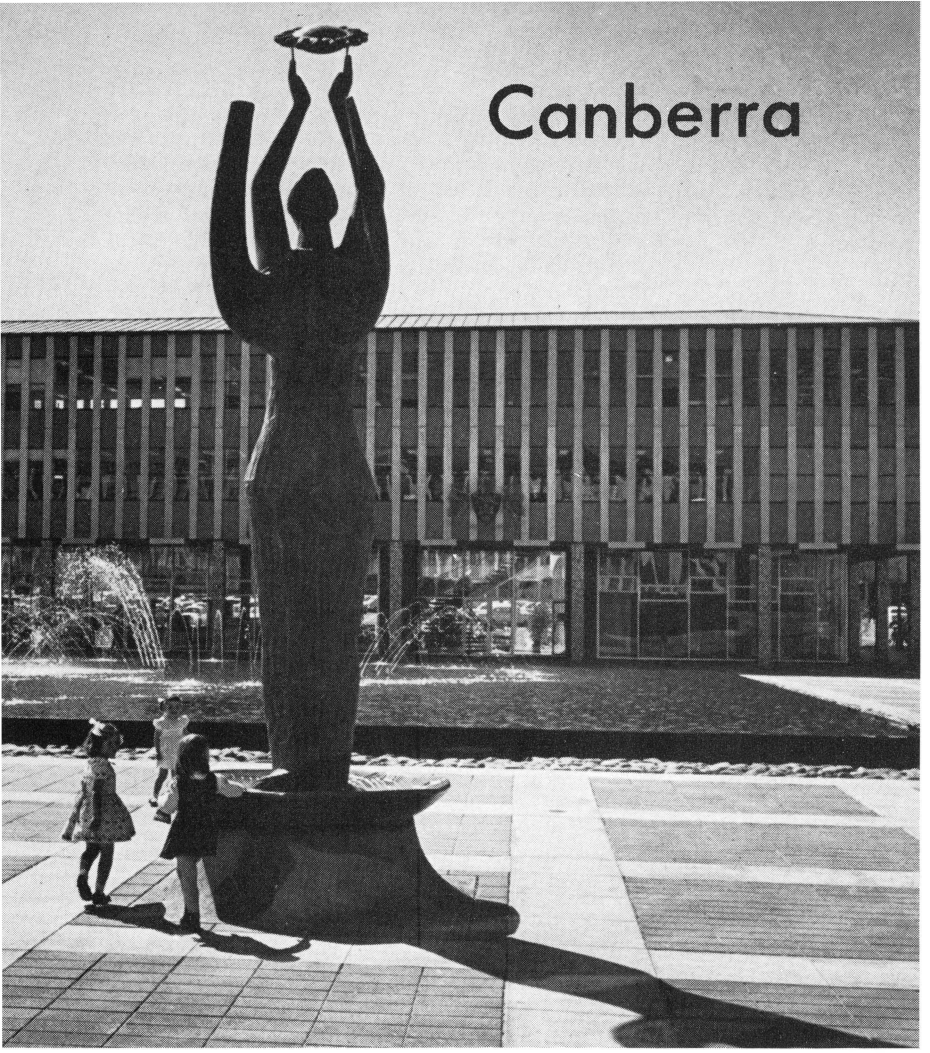
CAMPBELL ISLAND. See Subantarctic Islands in the other Australasian volume.

CAMPBELLTOWN (pop. 34,207) is a town in New South Wales, 51 kilometres (32 miles) south of Sydney. The State Planning Authority has selected it as the site for a satellite city. Eventually, it will have a population of 250,000. Some major companies have already begun manufacturing there. The area's main rural industries are dairy farming, poultry farming, fruit growing, and market gardening. Campbelltown was one of the first districts settled outside Sydney. Governor Macquarie founded the settlement in 1820. Its historic buildings include St. Peter's Anglican Church, built in 1823.

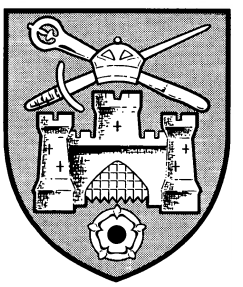
Cairns stretches from the western shore of Trinity Bay towards the mountains of the Great Dividing Range.
Australian News and Information Bureau



Canberra



Jeff Carter



Civic Centre, the commercial heart of Canberra, symbolizes the progressive and growing spirit of the city with its surroundings of modern buildings, sculptures, and landscaped gardens.

CANBERRA (pop. 156,334) is the national capital of Australia, and one of its fastest developing cities. It is the administrative centre of the federal government of Australia, and the commercial heart of the Australian Capital Territory. When the site for the Australian Capital Territory was chosen in 1909, only a few farmers lived in the district. Today, the beautiful city of Canberra spreads across the limestone plains where sheep once grazed.

The government plans Canberra as a centre not only for government, but also for science, research, higher education, and national and international conferences. The government also hopes that Canberra will become the national headquarters of professional, social welfare, and other associations.

Location, Size, and Description

The Australian Capital Territory occupies part of the Southern Tablelands in New South Wales, approximately 238 kilometres (148 miles) from Sydney and 502 kilometres (312 miles) from Melbourne. It is 135 kilometres (84 miles) by road from the New South Wales coast. Canberra, sited on the Molonglo River in the northern part of the territory, and the new towns of Woden-Weston Creek and Belconnen, occupy only about 194 square kilometres (75 square miles) of the Australian Capital Territory. A separate area of 73 square kilometres (28 square miles) at Jervis Bay, on the coast about 129 kilometres (80 miles) south of Sydney, was annexed to the Australian Capital Territory in 1915.

The undulating plains of Canberra are about 550 metres (1,800 feet) above sea level. The Molonglo River cuts directly through the city, and flows north-westwards to join the Murrumbidgee River at Burrinjuck Dam. The Great Dividing Range runs along the southern and western boundaries of the territory.

The Molonglo River once divided Canberra into two parts. Its wide flood plain was unsuitable for building, and was used to graze sheep and cattle. In 1964, engineers completed the damming of the river west of the city, and turned the flood plain into a lake. The lake was named after Walter Burley Griffin, the architect who designed Canberra's town plan. Two bridges span the lake. They are the Commonwealth Avenue Bridge and the Kings Avenue Bridge.

The bridges and the lake front form a triangular

James H. Green

Lake Burley Griffin, formed by the Scrivener dam on the Molonglo River, spreads through natural and landscaped gardens around the city of Canberra.

area that includes the present temporary Parliament House, which was completed in 1927. In 1969, the government chose Camp Hill as the site for the permanent Parliament House.

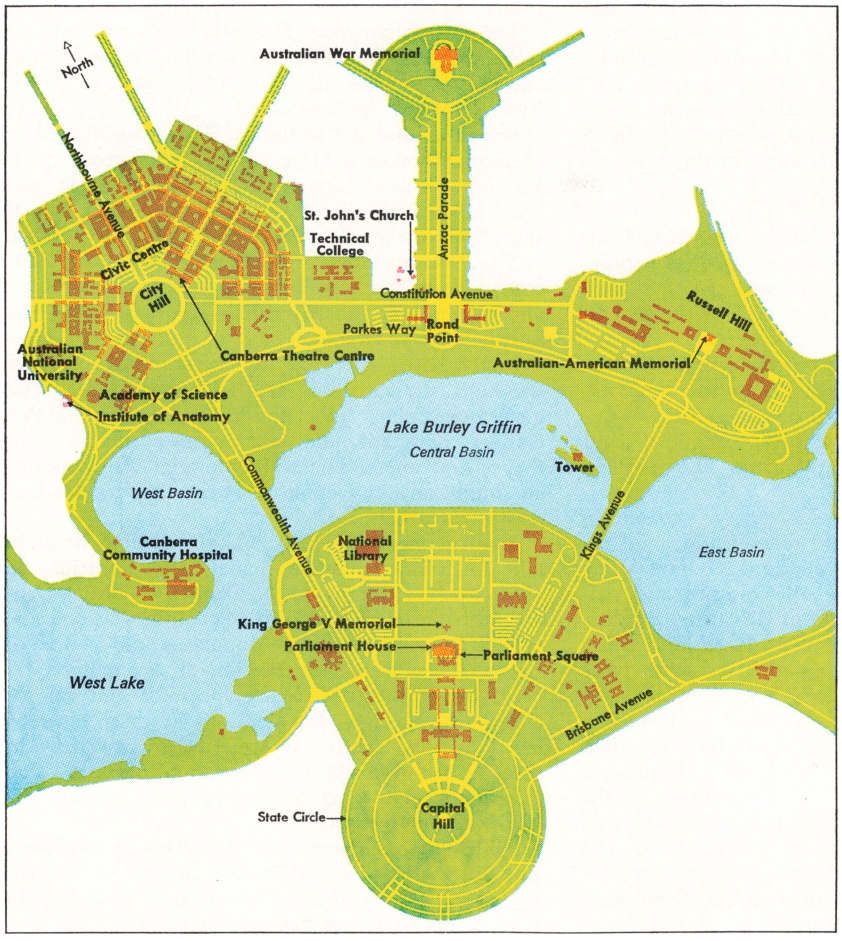
The Australian National University occupies a site on the north-western side of the lake. The Royal Military College at Duntroon lies to the north-east. The main housing suburbs extend northwards from the Civic Centre. On the southern side of the lake, the parliamentary triangle, the prime minister's house, embassy buildings and residences, and more housing suburbs extend among the trees and lawns. Government House, the residence of the governor-general of Australia, stands on the western shore of Lake Burley Griffin.

Canberra experiences cold winters and warm summers. July is the coldest month, with an average temperature of about 6° C (43° F). January is the hottest month, with an average of about 21° C (69° F). Rainfall averages about 584 millimetres (23 inches) a year.

The People and Their Work

The people who live in Canberra came from many parts of the world. The city is unique in that most of the people were not born there. Many of them moved to Canberra when government departments moved there, mainly from Melbourne and Sydney. Others moved to the city to provide the services needed by the government workers. A quarter of the population are immigrants, largely from Britain and other countries of Europe. More than 350 diplomats, representing 46 countries, live in the capital.

Canberra's work force totals over 58,000 people. Almost one-third of them work in the many modern government offices. Since World War II, the government has added large, modern blocks to the original office buildings for the increasing number of government departments moving to Canberra. In the late 1960s, the government and private investors spent about $A 60 mil-



The Planned City Area of Canberra forms a huge, regular triangle across the shores of Lake Burley Griffin.

Commonwealth News and Information Bureau

Parliament House, the temporary home of the Australian parliament, is a fine example of classical architecture. It stands imposingly on the southern shore of the lake.

lion a year on building projects almost equally. The building industry now employs more than 5,000 people.

The city's main shopping area is at Civic Centre. Two older shopping blocks are on Northbourne Avenue. One new shopping block faces a large square that contains a fountain. Another block is a self-contained centre with its own internal footpaths. More than 6,000 people work in the city's shops. Another 4,500 workers provide services in hotels, hostels, and cafes. About 9,000 people provide community, business, and professional services. The diplomatic missions provide work for about 2,000 people.

Fyshwick, east of the lake, has engineering workshops, warehouses, and factories producing building materials. About 4,500 people work in this area.

Cultural Life

Education. Authorities regard the schools in Canberra as being among the best-equipped in Australia. Some school assembly halls are so large that local dramatic and musical societies, as well as the general public, use them for special functions.

The New South Wales Department of Education staffs the schools and pre-schools in the territory. But the federal government meets the costs of supplying local education facilities. Anglican and Roman Catholic Church authorities also provide private schools in the area.

The Australian National University, situated in Canberra, is a leading centre of education and research. Its buildings are original and modern. Many of them display fine works of sculpture and mosaics. It contains the Institute of Advanced Studies, whose high standard of teaching and wide facilities for research have attracted scholars from many parts of the world. The university's School of General Studies offers facilities for more than 2,000 undergraduate students. Associated with the Australian National University are the Academy of Science, a meeting-place for scientists; the laboratories of the Commonwealth Scientific and Industrial Research Organization; and the Institute of Anatomy. The university's Department of Astronomy operates Australia's major optical observatory at Mt. Stromlo, 8 kilometres (5 miles) from Canberra.

At the Royal Military College, at Duntroon, cadets receive officer training for the Australian army. Naval cadets receive their training at the Royal Australian Naval College, at Jervis Bay.

Libraries. The National Library occupies a modern building on the shore of Lake Burley Griffin. The library is the home of the national archives, in which historical documents, newspapers, books, and films are kept. It also operates a lending library service in Canberra, with five branches and a mobile library.

The Australian War Memorial's library contains more than 70,000 books as well as films, photographs, and documents on all forms of warfare in which Australians have been involved.

Museums and Art Galleries. The Australian War Memorial houses a large collection of guns, shells and other ammunition, uniforms and helmets, aircraft, tanks, and relics of war from the Sudan War of the 1890s to the Malayan Emergency of the 1960s.

The Institute of Anatomy has collections of Australian animals, as well as the weapons, paintings, and carvings of the Australian Aborigines and the people of New Guinea.

Many Australian works of art at present hang in the halls and corridors of Parliament House. The government plans eventually to house a National Art Gallery, museums, and other cultural buildings in the central areas. The war memorial also contains an important collection of paintings by leading Australian artists.

Entertainment. The Albert Hall was once the main hall for concerts, opera, ballet, and musicals. In 1965, workers completed the Canberra Theatre Centre, in the heart of the city. The centre forms one side of Civic Square, with its fountains and statue of Ethos. It contains two theatres, an art gallery, rehearsal rooms, and facilities for local cultural societies. People can also see films at three cinemas near the city centre, as well as at two drive-in theatres in the northern and southern outskirts. The government has also provided many sporting facilities for enthusiasts.

Publishing. Canberra has two daily newspapers. The *Canberra Times,* established in 1926, is a morning paper. The *Canberra News,* first published in 1969, is an afternoon paper.

Radio and Television. The Australian Broadcasting Commission operates two radio stations and a television station in the territory. Private companies operate a radio station and a television station.

Transport

Canberra lies just south of the Hume Highway, the main road link between Melbourne and Sydney. Travellers from Sydney turn off the Hume Highway onto the Federal Highway near Goulburn, 121 kilometres (75 miles) from Canberra. Travellers from Melbourne turn off the Hume Highway onto the Barton Highway near Yass, 55 kilometres (34 miles) from Canberra. The Barton and Federal highways meet on Canberra's outskirts, taking motorists down Northbourne Avenue to the city centre. Northbourne Avenue continues over City Hall to Commonwealth Avenue and on to the south side of the city. This avenue then joins Monaro Highway, which leads to Cooma.

Canberra's airport lies 8 kilometres (5 miles) east of the city. It handles about 500,000 passengers a year. Daily train and bus services also connect Canberra with Melbourne and Sydney. The government operates bus services within the city.

Things to See and Do

About a million tourists visit Canberra each year. Most of them visit the city to see Parliament House. The Australian parliament usually sits during autumn and spring. Visitors may enter the public galleries whenever parliament is in session.

Tourists can take as long as a whole day to go through the extensive galleries of the Australian War Memorial. One gallery contains a Lancaster bomber, a Spitfire fighter, and several other aircraft from World War II. Memorial bronze plaques line the walls of the courtyard overlooking the Pool of Reflection. The plaques contain the names of many Australian servicemen who died in active service. The Hall of Memory is the central hall of the memorial. Near the Australian War Memorial, the eagle-topped aluminium spire of the Australian-American War Memorial rises 79 metres (258 feet) above landscaped gardens.

The Australian Capital Territory offers visitors beautiful scenic drives. They may gain a panoramic view of the city and the lake from Red Hill, Black Mountain, or Mount Ainslie. They may also view the natural settings of Scrivener and Cotter dams. Scrivener Dam, 6 kilometres (4 miles) from the city centre, holds back the waters of the Molonglo River, forming Lake Burley Griffin. Cotter Dam, Bendora Dam, and the Corin Dam contain Canberra's water supply.

Many sportsmen use Canberra as a base for fishing and ski-ing trips to the Snowy Mountains, 161 kilometres (100 miles) away.

Government

The Australian Capital Territory has no form of local government. The people living in the territory elect one member to the House of Representatives. He has full voting powers. The territory does not have a representative in the Senate.

The Minister for the Interior, advised by his department, controls and administers the Australian Capital Territory. The National Capital Development Commission plans and co-ordinates development projects in the territory. In addition, another body, the Australian Capital Territory Advisory Council, makes recommendations to the minister concerning the government of the region. The Australian Capital Territory has its own police force, court of petty sessions, and Supreme Court.

History

Charles Throsby, a naval surgeon, who travelled past the present site of Canberra in 1820, was probably the first white man to visit the area. Employees of Joshua John Moore, who pastured sheep and cattle on the present site of the suburb of Acton in 1823, probably made the first settlement. James Ainslie, overseer for Robert Campbell, established the second settlement, at Duntroon, about 1825.

During the late 1800s, the six colonies of Australia began negotiating for a federated Commonwealth of Australia. But they could not agree on which capital city should become the capital of the new commonwealth. Victoria wanted Albury to be the federal capital. In 1903, a royal commission set up by the new federal government agreed with the Victorian government. But Albury was closer to Melbourne than to Sydney. In 1904, the federal parliament decided that its capital should be near Dalgety, in the far south-east of New South Wales. New South Wales would not agree. The states compromised on the site in 1909, and New South Wales granted the area to the federal government in 1911.

In 1911, the Chicago architect Walter Burley Griffin won an international competition for a design for the city. On March 12, 1913, Lady Denman, wife of the then governor-general of Australia, named the city *Canberra* during a commencement ceremony. The name comes from the Aboriginal word *kamberri,* meaning *meeting-place.* Griffin settled in Australia and became director of the development plan. In 1921, after many disputes with government officials about his plan, Griffin left the position. But he had completed the basis of his plan. The government then founded the Federal Capital Advisory Committee under the architect Sir John Sulman. In 1925, it appointed a further planning body, the Federal Capital Commission, which was headed by the engineer Sir John Butters. The commission was responsible only to the federal government. Under its powerful authority, Canberra grew swiftly.

On May 9, 1927, the Duke of York, later King George VI, opened Parliament House. During the 1930s and early 1940s, the economic depression and World War II slowed the capital's development. At the end of the war, many federal government departments still had their headquarters and main offices in Melbourne. After World War II, the government began transferring all the offices to Canberra.

See also ACADEMY OF SCIENCE; AINSLIE, JAMES; AUSTRALIAN NATIONAL UNIVERSITY; GOVERNMENT OF AUSTRALIA; and GRIFFIN, WALTER BURLEY; in this volume.

Brian Brake, Magnum

The Canterbury Plains, the richest farming area in the province, sweep down from the western ranges to a coastline of broad beaches. Canterbury also has many fertile valleys in the foothills of the Southern Alps.

D. N. Dove

CANTERBURY occupies the east-central part of the South Island of New Zealand. It is the third largest province in the country. In the western part of the province, the tall peaks of the Southern Alps tower above hill-country sheep farms. In the east, the Canterbury Plains sweep from the ranges down to a coastline of broad beaches and rolling surf. Canterbury has some of New Zealand's finest beaches, such as Caroline Bay, near Timaru, and New Brighton and Sumner, near Christchurch.

The Land

Location and Size. Canterbury is roughly rectangular in shape. It is nearly 288 kilometres (180 miles) long at its longest point, and about 112 kilometres (70 miles) wide. It is bounded on the north by the Hurunui River, on the east by the Pacific Ocean, on the south by the Waitaki River, and on the west by the Southern Alps.

Land Features. The Canterbury Plains, comprising the central eastern coastal region, form the biggest area of flat land in New Zealand. These plains extend about 208 kilometres (130 miles) from Amberley in the north to Timaru in the south. Hill country extends for about 64 kilometres (40 miles) at the southern end of the province.

In the central part of Canterbury's eastern coast is the volcanic mass of Banks Peninsula, once thickly wooded and now fertile farm land. The peninsula's sheltered harbours, such as Lyttelton, the port of Christchurch, are craters that were flooded by the sea. Just south of Lyttelton is Lake Ellesmere, a shallow lagoon.

From Canterbury's eastern coast, the plains slope gently inland for about 48 to 64 kilometres (30 to 40 miles) to foothills that rise abruptly towards the Southern Alps. Chief peaks in the Canterbury section of the Southern Alps include Mt. Cook (3,705 metres or 12,349 feet) and Mt. Tasman (3,442·5 metres or 11,475 feet).

Lakes and Rivers. The melted snows from the Mt. Cook area feed Canterbury's three largest inland lakes—Lake Tekapo, Lake Pukaki, and Lake Ohau. From the Alps flow most of the rivers that originally formed the plains and now provide their main system of irrigation. Canterbury has nine rivers more than 80 kilometres (50 miles) long, including the Waimakariri, the Rakaia, and the Waitaki.

Climate. Canterbury's moderate climate tends to be dry and windy in summer and wet or frosty in winter. It has an average yearly rainfall of 660 millimetres (26 inches). The average temperature in January is 17° C (62° F) and in July 10° C (50° F).

The People and Their Work

In the Towns. Canterbury's chief cities are Christchurch and, in the southern part of the province,

FACTS IN BRIEF

Largest Towns: Christchurch, Timaru, Ashburton, Rangiora.

Area: 43,415 square kilometres (16,769 square miles).

Population: 352,400.

Chief Products: Barley, meat, oats, timber, wheat, wool.

Timaru. Canterbury has about 1,200 factories. Together they produce a total of $NZ 200 million worth of goods a year, use over $NZ 120 million worth of raw materials, and pay more than $NZ 50 million in wages. More than 31,000 of the people of Canterbury are factory workers. They work in meat works, textile mills, and clothing, footwear, electrical engineering, and tyre factories.

Canterbury's chief port is Lyttelton, 11·2 kilometres (7 miles) south-east of Christchurch. Most of the people of Lyttelton are waterside workers and ship-repairers. Others work in engineering factories and offices.

Timaru is Canterbury's second port. The Timaru area has about 175 factories. They include meat works, textile mills, flour mills, and food-processing plants. More than 3,000 of the people of Timaru are factory workers.

The province's third largest centre is Ashburton, in central Canterbury. About 80 factories employ more than 1,300 people and produce goods that include flour, processed foods, clothing, and textiles. The fourth largest town is Rangiora.

In the Country. Nearly four-fifths of the land in Canterbury is used for farming or for forestry. Three out of every four of New Zealand's crop farms are in Canterbury. These farms are extremely rich. They produce more than three-fifths of the wheat crop, more than half the oats, nearly three-quarters of the barley, and more than three-fifths of the peas grown in the country every year. The province has three main fruit-growing areas, at Loburn, Belfast, and Heathcote Valley. It also has large numbers of livestock—8,500,000 sheep, 193,000 beef cattle, 90,000 dairy cattle, and 41,000 pigs.

Pine forests cover about 375·5 square kilometres (145 square miles) of land in Canterbury. New Zealand's State Forest Service employs about 400 people to maintain pine plantations in northern, central, and southern Canterbury. About 70 sawmills operate in northern and central Canterbury.

Brian Brake, Magnum

Hill-Country Sheep Stations occupy large areas of farm land among the foothills of the Southern Alps. Farmers use highly trained dogs to help them muster sheep in this area.

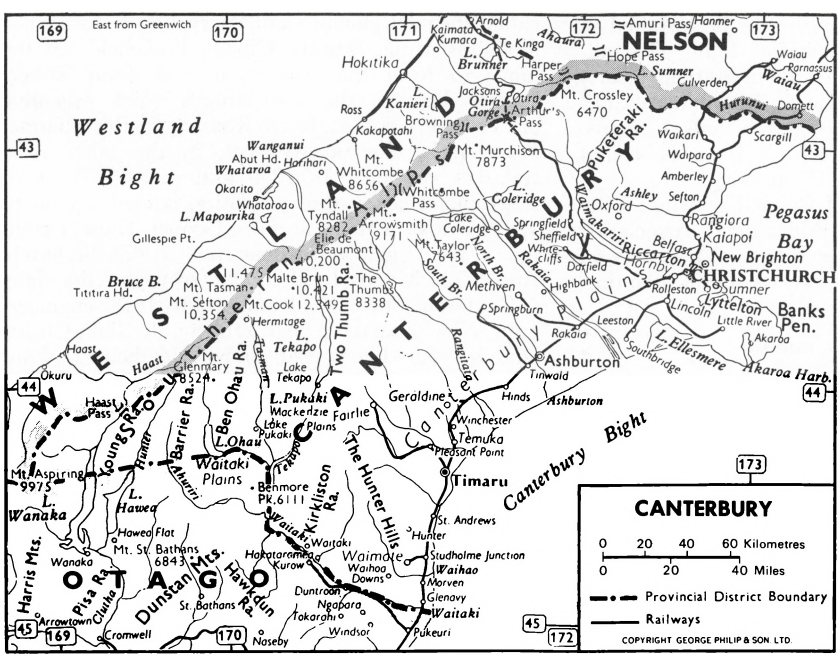
Canterbury takes much shingle from its rivers, particularly the Waimakariri, where some of New Zealand's biggest stone-crushing plants produce thousands of tons of crushed rock a day. This crushed rock, used in concrete, is popular as a building material and is also used as the surface for Canterbury's country roads.

Canterbury's fishing fleet totals 190 vessels and employs 300 fishermen. The home ports of the fleet include Kaikoura, Akaroa, Lyttelton, Timaru, and Ellesmere. Every year, the fleet catches fish worth a total of more than $NZ 1,000,000.

Transport and Communications

Main highways link Christchurch with Blenheim in the north, Lyttelton and Akaroa in the east, Dunedin in the south, Queenstown, Haast, and the southern lakes in the far south-west, The Hermitage, on Mt. Cook, in the south-west, and Greymouth in the west. In 1965, engineers completed the highway linking Christchurch with Haast by way of Wanaka and the Haast Pass, on Canterbury's border with Westland. A mountain road through Arthur's Pass links Canterbury with Westland. But most traffic to Westland centres, such as Greymouth, now travels by way of the better but longer highway over the Lewis Pass, in Nelson province.

Railway routes link Christchurch with Blenheim in the north, Lyttel-


CANTERBURY
0 20 40 60 Kilometres
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Provincial District Boundary
Railways
COPYRIGHT GEORGE PHILIP & SON LTD.
NELSON
CHRISTCHURCH
Westland Bight
Canterbury Bight
Pegasus Bay
Banks Pen.
Akaroa Harb.
Hokitika
Timaru
Ashburton
Rangiora
Kaiapoi
New Brighton
Lyttelton
Akaroa
Geraldine
Temuka
Waimate
Oamaru
Dunedin
Queenstown
Wanaka
Haast
Arrowtown
Cromwell
Naseby
Mt. Aspiring 9975
Mt. Cook 12,349
Mt. Tasman 11,475
Mt. Murchison 7873
Mt. Crossley 6470
Mt. Whitcombe 8656
Mt. Tyndall 8282
Mt. Arrowsmith 9171
Mt. Taylor 7643
Mt. Thumb 8338
Mt. Benmore Pk. 6111
Mt. Glenmary 8524
Mt. Setton 10,354
Mt. Bathans 6843
Harris Mts.
Dunstan Mts.
Hawkdun Mts.
Young Range
Two Thumb Ra.
The Hunter Hills
Kirkliston Ra.
Ben Ohau Ra.
Barrier Ra.
Pisa Ra.
Clutha
Hunter
Haast
Haast Pass
Lewis Pass
Arthur's Pass
Otira Gorge
Jacksons
Browning Pass
Kaimata Kumara
Arnold
Te Kinga
Alpha
Amuri Pass
Hanmer
Hope Pass
Harper Pass
Waiau
Rarnassus
Culverden
Hurunui
Domett
Waikari
Scargill
Waipara
Amberley
Ashley
Sefton
Oxford
Coleridge
Springfield
Sheffield
Darfield
Highbank
Methven
Springburn
Rakaia
Leeston
Southbridge
Ellesmere
Tinwald
Hinds
Winchester
Pleasant Point
Fairlie
Mackenzie Plains
Lake Pukaki
Lake Tekapo
Lake Ohau
Waitaki Plains
Hakataramea
Kurow
Waitaki
Waimate
Waihao Downs
Studholme Junction
Waihao
Morven
Glenavy
Duntroon
Ngapara
Tokarahi
Windsor
Pukeuri
St. Andrews
Hunter
St. Bathans
Haweea Flat
Haweea
Wanaka
Lake Wanaka
Lake Hawea
Kaikoura
Kaikoura Pen.
Okuru
Okarito
Whataroa
Abut Hd.
Harihari
Wanganui
Kakapotahi
Ross
Kanieri
Gillespie Pt.
Bruce B.
Titirita Hd.
Mapourika
Hermitage
Tekapo
Pukaki
Ohau
Tasman
Cook
Malte Brun
Elie de Beaumont
Coleridge
Lake Coleridge
Rakaia
Rangitata
Waimakariri
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Ashley
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Ashburton
Hinds
Tinwald
Ellesmere
Southbridge
Leeston
Rolleston
Lincoln
Little River
Akaroa
Sumner
Lyttelton
Rangiora
Kaiapoi
Belfast
Riccarton
Hornby
Darfield
Springfield
Sheffield
Oxford
Ashley
Sefton
Amberley
Waipara
Waikari
Scargill
Culverden
Domett
Hurunui
Waiau
Rarnassus
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Amuri Pass
Hope Pass
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Te Kinga
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Arnold
Kaimata Kumara
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Ross
Kanieri
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Mt. Murchison 7873
Mt. Crossley 6470
Hermitage
Lake Tekapo
Lake Pukaki
Lake Ohau
Lake Coleridge
Lake Brunner
Lake Sumner
Lake Ellesmere
Lake Waihao

D. N. Dove

Mount Cook, the highest mountain in New Zealand, towers majestically above southern Canterbury's fertile valleys.

ton in the east, Dunedin in the south, and Greymouth and Hokitika in the west. The western route passes through Otira tunnel, a tunnel 8 kilometres (5 miles) long under the Southern Alps.

A ferry steamer service across Cook Strait links Lyttelton with Wellington. Airline services from Christchurch International Airport link Canterbury with many centres in Australia and New Zealand.

Education

Canterbury has 270 government-run primary schools and 60 independent primary schools, most of which are run by the Roman Catholic Church. There are 36 government-run secondary schools and 19 independent secondary schools. Among the independent schools is Christ's College, Christchurch, one of New Zealand's best-known secondary schools for boys. There are technical colleges at Christchurch and Timaru.

The University of Canterbury was founded in 1873. It stands near the centre of Christchurch. But by its hundredth anniversary, it will be installed in its new buildings in the suburb of Ilam. The university has a teaching staff of about 200 and nearly 4,000 students. Lincoln College, 21 kilometres (13 miles) south-west of Christchurch, offers degree courses in agricultural subjects. It is an associated college of the University of Canterbury.

The Canterbury Regional Council of Adult Education and the Workers' Educational Association provide evening classes for adults. These classes include courses in such subjects as music, painting, pottery, drama, and accountancy.

Things to See and Do

Mount Cook National Park, an area of 699 square kilometres (270 square miles) in the central section of the Southern Alps, is Canterbury's chief tourist area and one of New Zealand's greatest tourist attractions. This park includes Mt. Cook, New Zealand's highest mountain, and the Tasman Glacier, which is 29 kilometres (18 miles) long. The chief tourist resort of this area is The Hermitage, a government-run hotel near the eastern slopes of the mountain. The Hermitage is the hub of the Southern Alps winter-sports area. Aircraft equipped with skis fly skiers and mountaineers from The Hermitage to the higher alpine snow-fields and also make scenic tourist flights.

The chief ski slopes are about 8 kilometres (5 miles) north-west of The Hermitage, in the Ball Glacier area. A rough road links The Hermitage with the Ball Glacier. The upper section of the Tasman Glacier has cross-country ski runs for advanced skiers. Lower ski slopes close to Christchurch include those in the Broken River basin and the Craigieburn Valley, and those on Mt. Cheeseman.

Excellent ice skating is available in central Canterbury at Lake Ida, Mt. Hutt, and Lake Lyndon, and in southern Canterbury at Fairlie, Albury, and Lake Tekapo. Wild-boar shooting and deer shooting are popular in many of the hill-country areas in western Canterbury. Trout fishing and salmon fishing are available in many Canterbury rivers, including the Rakaia, Rangitata, Pareora, and Opihi. The beaches at New Brighton and Sumner, both near Christchurch, have excellent surf.

History

Whalers from Australia were the first Europeans to settle in Canterbury. Historical records indicate that George Hempleman, a German-born whaling captain from Sydney, was Canterbury's first European settler.

In August, 1840, the Nanto-Bordelaise Company, an association of French colonists, landed 57 French settlers at Akaroa. But British government officials learnt of the French company's plans and, five days before the French arrived, claimed the South Island in the name of Queen Victoria. The British allowed the French settlers to remain in Akaroa.

In 1847, a group of British landowners, politicians, and churchmen, including the Archbishop of Canterbury, formed the Canterbury Association for the purpose of establishing a Church of England settlement in the South Island of New Zealand. They called their settlement Canterbury, and the province took this name. Edward Gibbon Wakefield led the move to form the association, and John Robert Godley became the association's chief executive officer (see GODLEY, JOHN ROBERT, in this volume; WAKEFIELD, EDWARD GIBBON, in the other Australasian volume). In 1850 and early 1851, eight ships chartered by the association landed a total of 1,500 British settlers at Port Cooper (now Lyttelton). Their first settlement was at Christchurch. About 500 Maoris lived in Canterbury at the time.

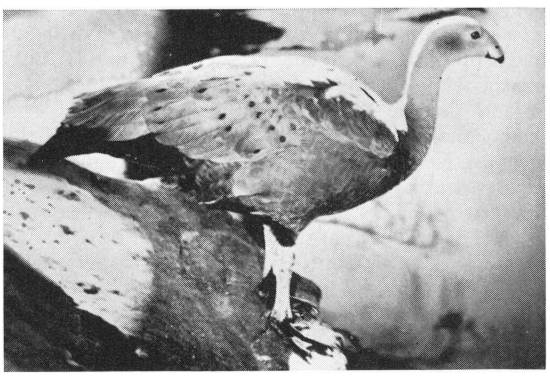
Canterbury developed quickly. In 1863, engineers built New Zealand's first railway, to link Christchurch with Ferrymead (now Heathcote). Four years later, this railway was extended through a tunnel to Lyttelton.

Related Articles in the Australasian volumes include:

Akaroa
Arthur's Pass
Ashburton
Banks Peninsula
Christchurch
Godley, John Robert
History of New Zealand
Lake Coleridge
Lyttelton
Meat Production
Mount Cook
Rakaia
Southern Alps
Timaru
Waimakariri
Waitaki
Wheat Production
Wool Production

CANUNGRA, a small town in southern Queensland, is important as a jungle training centre for the Australian Army. During World War II, Australian troops trained in the area before fighting against Japanese troops in New Guinea.

CAPE BARREN GEESE are large, unusual Australian birds. Cape Barren geese are about 864 millimetres (34 inches) long and have wingspans of 1·7 metres (5 feet 8 inches). They have grey plumage and black bills. They breed only on the islands of Bass Strait and the Recherche Archipelago, in Western Australia. They make their nests on the ground and line them with down. They lay four to six eggs, which are thinly coated with lime.



Norman Chaffer

A Cape Barren Goose looks outwardly like a large goose. But its internal structure resembles that of a shelduck.

Scientific Classification. Cape Barren geese belong to the family *Anatidae*. They make up the genus *Cereopsis*, species *C. novae-hollandiae*.

CAPE BYRON is a steep headland on the far north coast of New South Wales. It is the most easterly point of the Australian continent. Cape Byron lighthouse, with a light visible for 42 kilometres (25 miles), was erected in 1901. Captain James Cook first sighted and named Cape Byron in 1770.

CAPE FAREWELL is the northernmost point of the South Island of New Zealand. A narrow belt of sand called Farewell Spit stretches for 24 kilometres (15 miles) at the end of the cape. James Cook gave the spit its name in 1770, because it was the last part of New Zealand he saw on his voyage there.

CAPE KIDNAPPERS forms the southern arm of Hawke Bay on the eastern coast of the North Island of New Zealand. It is noted for its gannet rookery—one of the world's few mainland gannet colonies. The British explorer James Cook sighted the cape in 1769.

CAPE LEEUWIN lies at the western end of Flinders Bay, on the south-western coast of Western Australia. A lighthouse stands at the end of the cape. In 1801, Matthew Flinders named the cape after a Dutch ship that had sailed along that coast in 1622.

CAPE MARIA VAN DIEMEN is in the extreme north of New Zealand. It is not really a cape of the mainland, because it is situated on a small offshore island. It has a lighthouse. The Dutch explorer Abel Janszoon Tasman named the cape after the wife of his sponsor, the governor of the Dutch East Indies.

CAPE REINGA is in the extreme north of New Zealand. A lighthouse on the headland towers 288 metres (961 feet) above the sea. According to Maori legends, Cape Reinga was the departure point of Maori spirits. The Maoris believed that the spirits travelled to the northernmost point of the North Island. Then they descended through the roots of a certain pohutukawa tree to the world of spirits below the ocean.

CAPE TURNAGAIN is a headland on the south-eastern coast of the North Island of New Zealand. In 1769, the British explorer James Cook, sailing south, turned his ship around near the cape to head north towards Gisborne, and gave the cape its name.

CAPE YORK PENINSULA is the northern tip of Queensland. It stretches about 800 kilometres (500 miles) north from Cairns and covers about 234,000 square kilometres (90,000 square miles). A projection of the eastern highlands extends along the eastern coast. A low flat plain extends to the Gulf of Carpentaria on the western side. Farmers in the southern area raise sheep and beef cattle. One of the world's largest deposits of bauxite is at Weipa on the western side of the peninsula. Other mineral deposits include rutile and zircon at Urquhart Point in the west, tin along the eastern coast and in the Herberton-Mount Garnet district, and a number of small gold-fields along the eastern side of the peninsula.

CAPITAL PUNISHMENT, punishment by death, is still provided for in the laws in three states. In Victoria, South Australia, and Western Australia, capital punishment may be ordered for murder, piracy with violence, and treason. In the other three states, it has been abolished.

Queensland, which abolished capital punishment in 1922, was the first state to do so. The last hanging took place there in 1913. New South Wales followed in 1955. But no hanging had taken place since 1939. Tasmania abolished capital punishment in 1968. No one had been hanged in that state since 1946. The last hangings in both Western Australia and South Australia took place in 1964.

The Australian federal government, which is responsible for the administration of the Australian Capital Territory and the Northern Territory, abolished capital punishment in 1973. The last hanging in the Northern Territory was in 1952. None has ever taken place in the Australian Capital Territory.

The last man hanged in Australia was Ronald Joseph Ryan. He was executed at Pentridge in Victoria in 1967. Ryan was alleged to have shot and killed a warder during a prison escape some months earlier. The hanging aroused intense public controversy. The controversy may partially explain why capital punishment has not been used since.

In New Zealand, capital punishment was abolished in 1961. The last hanging took place in 1957. In both Indonesia and Malaysia, the death penalty may still be ordered. But it has been rarely used in recent years. The method is hanging in Malaysia and firing squad in Indonesia.

Noel T. Sweeney

Captain Cook's Cottage was transported from Yorkshire, in Britain, to Fitzroy Gardens in Melbourne in 1934.

CAPTAIN COOK'S COTTAGE is in the Fitzroy Gardens in Melbourne. The parents of the explorer James Cook lived in the cottage at Great Ayton in Yorkshire. But Cook probably never lived there. The date over the doorway suggests that the cottage was built or rebuilt in 1755, 14 years after Cook had left Great Ayton. Sir Russell Grimwade, a Melbourne businessman, bought the cottage in 1933 and presented it to the Victorian government. The cottage was dismantled and shipped to Melbourne.

CARGILL, WILLIAM WALTER. See OTAGO (History) in the other Australasian volume.

CARGO CULTS. See MELANESIANS in the other Australasian volume.

CARLILE, FORBES (1921-), a swimming coach, trained many swimmers who held world records. They included Judy Joy Davies, John Davies, Terry Gathercole, Karen Moras, Shane Gould, and Jenny Turrall. Carlile was born in Melbourne and educated at Sydney University, where he later became a lecturer in physiology. He represented Australia in modern pentathlon in the Olympic Games at Helsinki in 1952. He was Australian Olympic swimming coach in 1948 and in 1956.

CARNARVON (pop. 4,222) is situated on Australia's west coast, about 966 kilometres (600 miles) north of Perth. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume. It lies on the Gascoyne River and is the chief port for the large surrounding pastoral district. Bananas and beans are grown on the lands along the river.

Carnarvon is the site of a major space-tracking satellite communications complex. The Carnarvon station provides down-range support for United States manned space flights for the National Aeronautics and Space Administration (NASA). The main space-tracking instrument at Carnarvon is an antenna 9 metres (30 feet) in diameter that is also used in tracking polar-orbiting scientific satellites. There are two other antennas in this station. One, 13 metres (42 feet) in diameter, was originally used to provide communications for the space-tracking station. It now operates as a command station for satellites over the Pacific. The newest antenna is a "dish" 27 metres (90 feet) in diameter that is used for communications between Western Australia and Japan.

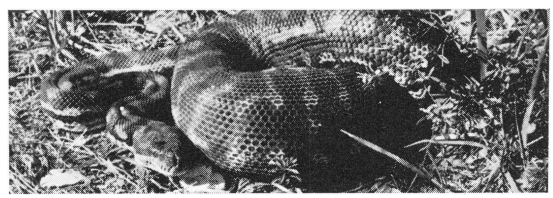
The town was surveyed in 1883. It was proclaimed in 1886 and named after Lord Carnarvon, then Secretary of State for the Colonies.

CARPET SNAKES are Australia's most common and widespread pythons. Some carpet snakes grow to a length of 3.5 metres (12 feet), but most of them grow to only 2.5 metres (8 feet). They live in all parts of Australia except the south-east and Tasmania. They live in both dense coastal rain-forests and inland deserts. Like other pythons, they are egg-laying snakes, and the females help to incubate the eggs by coiling around them until they hatch. The snakes are various shades of brown with a variable pattern of lighter brown bands and blotches with black edges. They eat small mammals. The *diamond snake* is a local name for a type of carpet snake.

Scientific Classification. Carpet snakes belong to the family *Boidae* and the sub-family *Pythoninae*. They are genus *Morelia*, species *M. spilotes*.

Carpet Snake

Eric Worrell



CARRUTHERS, JIMMY (1929-), was Australia's first universally recognized world boxing champion. In 1952, he won the world bantamweight title from the South African Vic Toweel at Johannesburg, in South Africa. Film of the fight shows that Carruthers landed 147 punches in the 2 minutes 19 seconds that the fight lasted. Toweel threw only one punch, and it missed. Carruthers retired as unbeaten world champion in 1954, after 19 professional fights. He returned to the ring in 1961, but lost four of his six come-back fights. He was born in Sydney.

CARSTENSZ, JAN, was a Dutch navigator who charted part of the northern coast of Australia and named the Gulf of Carpentaria. In 1623, officials of the Dutch East India Company instructed him to extend the explorations of Willem Jansz, the first European to sight the continent (see JANSZ, WILLEM, in this volume). In the yacht *Pera,* Carstensz sailed to the southern coast of New Guinea, then turned south to locate the western side of what is now called Cape York Peninsula. He was travelling with Willem Joosten van Colster, captain of the *Arnhem*. They sailed along the coast of the peninsula until Colster took a westerly course to what is now Arnhem Land. Carstensz named the gulf after Pieter de Carpentier, who was at that time governor-general of the Dutch East Indies.

CASEY, LORD (1890-), RICHARD GARDINER CASEY, served as governor-general of Australia from 1965 to 1969. He was the third Australian to hold the post.

Australian News

Lord Casey

Casey was born in Brisbane and educated at Melbourne and Cambridge universities. He joined the army in 1914 and rose to the rank of major during World War I. He was awarded the Distinguished Service Order and the Military Cross. Casey began his Australian political career by winning election to the House of Representatives in 1931. He held many important positions, including federal treasurer, from 1935 to 1939, and minister in charge of development and scientific and industrial research.

During World War II, Casey distinguished himself at home and abroad. In Australia, he was minister of supply and development in 1939 and 1940. He was then appointed the first Australian minister to the United States. In 1942 and 1943, in Britain, he was minister of state for Middle East affairs and a member of the British war cabinet. From 1944 to 1946, he was governor of Bengal.

In 1946, Casey returned to Australia. He served as minister for national development in 1950 and 1951, and then minister for external affairs until 1960.

CASH, MARTIN (1810-1877), was a bushranger. He was born at Enniscorthy, County Wexford, Ireland. In 1827, he was convicted of housebreaking and sentenced to seven years transportation to Sydney. After working there as an assigned servant, Cash went to Hobart. He was convicted of larceny in 1839, but escaped to the bush with two companions and evaded capture for nearly two years. He was finally captured in Hobart and sentenced to transportation for life to Norfolk Island. Cash was eventually released after a period of good behaviour.

CASSIAS form a *genus* (group) of 30 to 40 trees and shrubs that grow in the tropics and subtropics. About 25 to 35 of these trees grow only in Australia, mostly in the dry, inland parts of Western Australia. Their leaves are divided. Most of the group have large yellow flowers. Many are cultivated as ornamental shrubs. The *pudding pipe tree* has cylindrical seed pods more than 2 centimetres long. *Queensland laburnum* has pale yellow, close grained, attractively marked wood.

Scientific Classification. Cassias belong to the family *Caesalpinae* and form the genus *Cassia*. Pudding pipe trees are species *C. fistula*. Queensland laburnum is species *C. brewsteri*.

CASSOWARY. See CASSOWARY in the main volumes.

CASTLE, LEONARD. See ARTS OF NEW ZEALAND (Pottery) in this volume.

CASTLEREAGH is a river in central northern New South Wales. It rises on the southern slopes of the Warrumbungle Range near Coonabarabran. It flows southwards, and then turns near Gilgandra and flows in a north-westerly direction. Past Coonamble, it unites with the Macquarie River and forms a tributary of the Barwon and upper Darling rivers.

The main primary industries in the district are wheat and wool growing, fat lamb and beef cattle raising, and timber milling.

George William Evans, a surveyor, discovered the river in 1818. It was named in honour of Lord Castlereagh, then secretary of state for the colonies.

CATBIRDS are found in the rain forests of eastern Australia and New Guinea. They are named for the mewing cat-like noises they make. They are about the size of pigeons. The males appear to help to defend the territory, incubate the eggs, and feed the young. Catbirds eat fruit, insects, and snails. The four species are the green, the white-eared, the spotted, and the tooth-billed.

Scientific Classification. Catbirds belong to the bowerbird family, *Ptilonorhynchidae*, and the genus *Ailuroedus*.

CATCHPOLE, KEN. See RUGBY UNION (Players) in the other Australasian volume.

CATCHPOLE, MARGARET (1762-1819), became known for her devotion to nursing and helping other people during the early years of settlement at Sydney. She landed in Sydney as a convict in 1801 and was assigned as a servant. Later, she was employed as an overseer on a farm, and began to act as a midwife. She did not marry, preferring to continue her nursing. She eventually became a respected member of the community, and received an absolute pardon in 1814.

The Mitchell Library

Margaret Catchpole

Margaret Catchpole was born at Nacton, in England. She was a servant girl. In 1797, hearing that her lover was in prison, she stole a horse to ride to see him. She was arrested and sentenced to death, but her sentence was later commuted to seven years' imprisonment. When she and her lover tried to escape, she was sentenced to transportation for life.

CATSPAWS are small, tufted plants commonly called *kangaroo paws*. There are about 10 different kinds, all of which grow in the south-west province of Western Australia. In all these plants, the sepals and petals are joined to form a long tube that is split and turned back at the upper end, like claws. Catspaws have smooth, grass-like leaves and a spike or spikes of gold or orange-brown flowers. Their stems and flowers are thickly coated with soft, fuzzy hairs.

Scientific Classification. Catspaws belong to the family *Haemodornceae* and the genus *Anigozanthus*. They are species *A. humilis*.

CATTLE DOG. See AUSTRALIAN CATTLE DOG in this volume.

Photographic Library of Australia

Road Trains, consisting of trucks towing two or more trailers, transport cattle along the beef roads of northern Australia.

CATTLE INDUSTRY is a leading industry in Australia and New Zealand. Farmers in these countries can raise beef cattle at lower costs than can farmers in Europe or North America. They have two advantages over most of their European and American rivals. First, they can keep their cattle outside all the year round, instead of housing them during the winter. Second, with vast areas of cheap land, they can feed their cattle on grass, instead of fattening them on grain.

Australia has 25 million beef cattle and 4 million dairy cattle. Each year they produce more than 1·43 million tonnes (1·41 million tons) of beef valued at more than $A 970 million. New Zealand has 5 million beef cattle and 3·5 million dairy cattle. Each year they produce more than 393,000 tonnes (387,000 tons) of beef valued at nearly $NZ 190 million. Beef accounts for $3 out of every $100 worth of all goods and services produced in Australia. In New Zealand, the figure is $5 out of every $100.

This article deals with beef cattle in Australasia. For information on dairy cattle in this area, see DAIRY INDUSTRY in this volume. See also MEAT PACKING in the main volumes.

Beef Cattle Farming

Farms. Beef cattle thrive in both temperate and tropical climates. Farmers raise cattle in all parts of Australia except the central and western deserts, which cover a third of the continent. Climate affects all aspects of their work—what else their farms will produce, how large their herds will be, and how large their farms must be to support the herds.

Most beef cattle in Australia are kept in the areas of the continent with good rainfall. More than half of Australia's beef cattle are grazed as a supporting enterprise on farms that are mainly devoted to sheep, wheat, and dairy cattle. These farms lie in the south-east and south-west of the continent. These areas have growing seasons at least five months long, enabling farmers to establish improved pastures. Another quarter of Australia's beef cattle is grazed on natural grasslands on specialized cattle stations in northern Australia. The rest are reared together with sheep in the dry interior in the south of the continent.

In New Zealand, farmers raise some cattle in all regions except the high mountains of the South Island, which are covered with permanent snow. Two-thirds of the beef cattle are concentrated in the North Island. Cattle are rarely a full-time commercial product on New Zealand farms. Instead, they are a supporting enterprise on farms that are mainly devoted to raising sheep or fat lambs.

Herds. One-third of the farms in Australia that produce beef have herds of less than 20 cattle. Half have herds of less than 50 cattle. But the specialized cattle stations in the north of the continent have much larger herds. More than half of the beef cattle in Australia graze on farms with herds of more than 500 cattle.

The productivity of cattle varies widely between regions. In the north of the continent, only half of the cows have calves every year. Cattle are not ready for slaughter until they are 5 or 6 years old. As a result, only 13 out of every 100 cattle in the herd are sold each year. In the better rainfall areas of the south, nearly three quarters of the cows have calves each year. The cattle are ready for slaughter when they are 1 or 2 years old. As a result, 60 out of every 100 in the herd can be sold each year. The

farmers' investments are much smaller, and their return on investment comes much more quickly.

Not all cattle are sold for slaughter directly from the farm or station on which they are bred. A high proportion of the cattle from the poorer areas are sold to farmers who fatten them in areas where grazing is more favourable. For this reason, many cattle bred in the Northern Territory are fattened in the better rainfall areas in Queensland. Similarly, a large number of cattle bred in the drier areas of Queensland are fattened on the improved pastures of the wheat and sheep farms in the better rainfall areas of New South Wales and Victoria.

Breeds. In Australia, where a high proportion of cattle still graze on the natural grasslands, the slower-maturing Hereford is the main breed. In the temperate south of the continent, where improved pastures have been established, farmers prefer the quicker-maturing Aberdeen Angus. Most of New Zealand has a temperate climate and improved pastures are easily established. For this reason, the Aberdeen Angus is the main breed, followed by the Hereford and the Shorthorn.

In tropical Australia, the Brahman or Zebu breed of cattle has been introduced from Asia because these cattle are more resistant to cattle ticks. In both Australia and New Zealand, the quickly-growing Charolais cattle are being bred. Australia has also developed its own breed of cattle, the Murray Grey. This breed is being exported to cattle farmers in both Britain and the United States.

Marketing Cattle

Transport. Almost all Australian cattle are taken to market by road transport. The federal government has built *beef roads* across northern Australia, from the Kimberleys of Western Australia to the coast of Queensland, for cattle transport. *Beef trains,* consisting of a truck and two to six trailers, each with stake sides and open top, move large numbers of cattle on these roads.

Nine out of ten Australian cattle are sold by auction. Half are sold in local auctions and half in city auctions. Professional buyers purchase the animals and then sell them to meat processors. Some cattle are sold to buyers who travel from farm to farm. A small proportion are sold *over the hook*—that is, the farmer pays to have his cattle slaughtered and later sells the meat to a wholesaler or retailer, covering both the cost of keeping the animals and the cost of slaughtering them.

Slaughter. Abbatoirs operate in all cattle-rearing areas in Australia, but most of them are in the high rainfall areas near the coast. The concentration of cattle is greatest in these areas and many of the leaner range cattle from the more remote areas are sent there for fattening before finally being sold for slaughter.

The grading of beef for export is controlled by the Australian Meat Board. The members of the board are either elected by beef producers or appointed by the government. Only specially licensed meat works are permitted to slaughter beef for export. All exported beef must be of a standard specified by the Australian Meat Board. The Australian and New Zealand governments employ a number of meat inspectors in the abbatoirs to ensure that standards of cleanliness are maintained throughout all stages of handling and that diseased meat is not processed and sold for food.

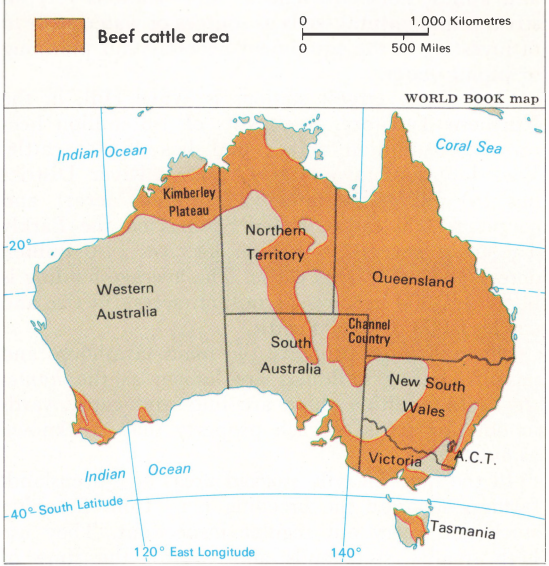
Prices. In Australia, beef prices have always been determined in a free market. They have never been supported by a bounty or tariff, unlike the prices of many other types of Australian farm produce. By contrast with butter, for example, beef is never sold on the Australian market at a higher price than the export price. In New Zealand, the price paid for beef is controlled by the Meat Export Committee. This committee fixes a minimum export price for beef, which in turn determines the minimum local price. Farmers can sell their cattle on the property, by auction, or directly to meat works. But in New Zealand, a high proportion of beef is sold through co-operative organizations run by the farmers themselves.

Export. Beef is an extremely important export item in both Australia and New Zealand. Australia exports 899,000 tonnes (875,000 tons) of beef a year. Exports amount to more than half of the beef produced. Australia's beef exports are valued at $A 675 million. This amount is equal to $20 out of every $100 of Australia's total farm exports and $15 out of every $100 of all Australia's exports. The corresponding figure for New Zealand is $N 154 million. This amount is equal to $15 out of every $100 for all farm exports and $14 out of every $100 of all New Zealand exports.

Three countries import almost 90 out of every 100 tonnes of beef Australia exports. The United States is the main export market. It takes more than half

BEEF CATTLE IN AUSTRALIA

Beef cattle are found in all parts of Australia except the central and western deserts. The greatest concentration of beef cattle is in areas of better rainfall.



the Australian beef. Britain is Australia's next most important importer, taking 18 out of every 100 tonnes of beef exported by Australia. Japan is the third most important importer of Australian beef.

The United States is also New Zealand's best customer, buying more than half of all New Zealand beef. Canada, New Zealand's second best customer, imports 23 out of every 100 tonnes of the country's beef exports. Britain is New Zealand's third most important meat-importing market.

Life on a Cattle Station

Companies own two out of every three of the specialized cattle stations in northern Australia. On these stations, the labour force consists of a manager, an overseer, several stockmen, and normally one or more *jackeroos* (trainee managers). Jackeroos undergo a three-year training under the direction of the manager. This training qualifies them to become overseers and eventually managers on cattle stations. The weakness of this system is that the number of qualified jackeroos greatly exceeds the number of vacant overseers' posts available. The prospects of a jackeroo finding a job as an overseer after he has completed his training are not good.

Many of the smaller stations are operated by the owner, his family, and hired stockmen. In the Northern Territory and the Kimberleys of Western Australia, a high proportion of the labour force is made up of Aboriginal stockmen.

The quantity of improvements on large stations varies with the region. In Queensland, farmers need about 14 hectares (35 acres) to support each animal. Most properties are fenced and water is supplied from artesian wells. But in the Northern Territory and the Kimberleys, station operators need much larger areas—about 50 hectares (124 acres)—to support each animal. In these remote regions, few stations could afford the prohibitive cost of fencing, and almost none are fenced. Most stations rely on streams and natural wells as sources of water, instead of investing in the equipment necessary for pumping or piping water.

One of the largest stations is Wave Hill, in the Northern Territory. It consists of 1·6 million hectares (4·0 million acres) and has 49,000 cattle. Waterloo Limbunya in the Victoria River District has 1·0 million hectares (2·5 million acres) and carries 51,000 cattle. Helen Springs on the Barkly Tableland covers 1·6 million hectares (4·0 million acres) and has 17,000 cattle. The average holding is about 400,000 hectares (1 million acres) in size and carries 8,000 to 10,000 cattle.

On each large property the main farmhouse and its surrounding buildings are known as the *homestead*. In addition there are huts and cattle yards in outlying parts of each property that are known as *outstations*.

In the more heavily stocked areas of Queensland, farmers separate the breeding herd from fattening stock and carry out regular inspections. They use high quality stud bulls and control the time of calving. They muster cattle regularly and take animals that are ready for slaughtering from the herd and transport them to market or the fattening regions. The stockmen spend the rest of their time inspecting and repairing fences, buildings, vehicles, and watering points.

Queensland Public Relations Bureau

Beef Cattle graze on the drier inland areas of Australia that are unsuitable for dairy farming or the intensive cultivation of crops.

In the remote Northern Territory and the Kimberleys, the station hands muster the cattle once a year. Mustering takes place during the dry season. Musterers bring the cattle to the nearest outstation. There the station hands brand the cattle. They take the fat cattle from the herd to be transported to market. They release the rest for grazing for another year. The beef produced in this way is worth only half the price of better-quality beef in southern Australia, because it is suitable only for sausages and hamburgers. But some Kimberley cattle have been sold in Japan as table beef after as little as 100 days feeding on grain sorghum in a feed lot on the Ord River.

The cattle industry is profitable in these remote regions, in spite of the huge areas needed to support each animal and the low price received for beef, because it operates on a large scale, without expensive improvements, and with a limited labour force.

Cattle stations in northern Australia are a great distance from each other and from the nearest towns. Many stations are 100 kilometres from their nearest neighbours. In some areas they are 500 kilometres from the nearest town. Roads in many areas are poor and can be closed by floods for a number of weeks. For these reasons, each cattle station homestead is a small isolated community.

Supplies of food and other necessary items may reach the stations only at infrequent intervals. Each station operator must keep large stocks of food, clothing, fuel, and other materials on the station. The station labour force must be capable of providing all of the repairs and maintenance services to houses, electrical equipment, and vehicles which are normally provided by outside tradesmen in more settled areas.

The provision of medical and educational services was impossible before the introduction of radio-telephones and aeroplanes. Pedal radios operated by human power were introduced in the 1920s. At first the service was limited to communicating with a doctor when his services were required. Flying doctors were located at strategic points and could give advice over the radio or fly to the isolated stations if necessary. Today radios powered by diesel engines are used both for general communication and to support correspondence courses, generally the only means available for providing primary education for children on isolated cattle stations. On some stations, a governess is employed. But children are normally sent to boarding schools to receive secondary education.

Even with two-way radio, life on the remote cattle stations can be extremely lonely. Women and children suffer particularly because the men are often absent at outstations for weeks during the mustering season. Many of the larger stations are now equipped with aircraft both to assist in locating cattle and to provide a rapid means of communication with the outside world.

Cattle share the grazing with a large number of kangaroos and other native animals as well as introduced animals including camels, donkeys, and wild horses. In many areas, these animals can reach plague proportions and must be destroyed at regular intervals.

In some regions, the grazing area can become overgrown with scrub which must be cleared. For example, a type of acacia known as *brigalow* grows as a thick scrub in Queensland and is a nuisance to farmers until it is cleared. In the past, trees were killed by ring-barking. Today farmers try to get rid of scrub by spraying poison or by clearing the land with bulldozers. After these clearing operations have been carried out, farmers have also tried to improve the grazing by replacing the natural grass with the improved pasture legume, called *Townsville stylo*. This plant, belonging to the pea family, increases the number of cattle which can be carried. But it can be grown only in the tropical or subtropical regions of the continent where the growing season exceeds five months.

In drought periods, large numbers of cattle die of starvation, or have to be mustered and sold before they starve. In the Kimberleys and the Northern Territory, it is not economical to feed the animals during a drought. In the better rainfall areas in Queensland, farmers cut branches from trees such as Australia, farmers cut branches of such trees as mulga for use as cattle feed. Droughts can extend kurrajong and feed them to the cattle. In central over a period of up to six or seven years. Cattle numbers in these remote areas fluctuate widely with weather conditions.

History

Cattle were first introduced into Australia in 1788 when the first settlers from Britain landed. But the industry was extremely small because the only available outlet was the local market. After refrigeration was introduced in 1880, it was possible to export beef to Europe. Cattle numbers increased rapidly. Cattlemen settled in tropical Australia in the 1880s, because the tropics were unsuitable for sheep. Further expansion of the cattle industry took place in the 1940s, when improved pastures and superphosphate were introduced in southern Australia.

Until World War II, most cattle were sent by rail or walked to market or to the fattening areas. Walking cattle was known as *droving*. The length of a droving trip could be a few hours while cattle moved from the farm to a local market or railway line. But it could be as long as three months if cattle were driven from the remote stations in the Northern Territory into Queensland. The longest droving route in Australia was the Canning Stock Route, which ran for 2,000 kilometres (1,200 miles) from the Kimberleys in northern Australia to the gold-fields at Kalgoorlie. It was built at the end of the 1800s to supply the large population on the gold-fields with beef. But it was abandoned early in the 1900s when the population in the gold-fields declined. Like all stock routes in remote areas, it consisted simply of a line of wells with permanent water at intervals of 10 to 20 kilometres apart where cattle could be watered.

Another famous stock route was the Birdsville Track from Birdsville in south-western Queensland to Maree in South Australia—a distance of about 450 kilometres (290 miles). Queenslanders would drive their stock to the railway at Maree for shipment to market.

A typical droving team would consist of a number of drovers each with several horses and either wagons or packhorses for transporting blankets, cooking equipment, and food. The drovers carried no fodder for their horses, which had to subsist on grazing. Each drover had to have several horses, because unfed horses cannot be worked every day. In settled areas, cattle would be held in paddocks at night during a droving trip. But in the remote unfenced north, the herd was held together by drovers taking turns to ride around the cattle at night, hemming them in.

With the introduction of good roads, large trucks replaced droving as the main means of moving cattle. The beef road network expanded to reach more remote stations and link them with coastal abbatoirs.

In the 1960s, an attempt was made to overcome the transport problem in remote areas by slaughtering cattle at Glenroy Station in the Kimberleys and flying the meat to the coast, where it was frozen, packed, and shipped abroad. But this operation, known as *air beef*, proved to be more expensive than the transport of live cattle by truck on beef roads and was abandoned.

Throughout most of Australian history, wool production and dairying have been more profitable than beef production. But in the late 1960s, wool prices dropped while beef prices remained high. As a result, between 1968 and 1973, the number of Australian beef cattle increased from 14 million to 27 million.

See also CATTLE in the main volumes.

CAULFIELD CUP is one of Australia's major horse-racing events. It is run over 2,400 metres (1·5 miles). The Caulfield Cup and the Melbourne Cup together make up the Melbourne spring double. The Caulfield Cup began in 1879. By 1885, it was worth $A 3,750. That year, it attracted 41 starters, and a record crowd of 20,000 saw 16 horses fall in a spectacular crash. In 1909, two horses, Blue Book and Aborigine, finished first in a dead heat.

CAVES. Most limestone caves in Australia are found in the south-eastern part of the country. These include such beautiful caves as those at Jenolan, Yarrangobilly, and Abercrombie in New South Wales, and at Buchan and Lilydale in Victoria. Jenolan Caves were discovered between 1838 and 1841 by James Whelan, a grazier, and two mounted police, when searching for a bushranger. In 1866, the area was made a special reserve. In South Australia there are some beautiful caves near Mt. Gambier and Naracoorte and there are many large dry caverns in the desert area of the Nullarbor Plains. The Kimberley Ranges of Western Australia also have limestone caves and others are located around Augusta in the extreme south-west of the state. Queensland's caves are found mainly in the east of the state, for example, around Chillagoe and Mungana and between Rockhampton and Gladstone. These are notable for their stalactites, stalagmites, and other cave formations. Many of the Tasmanian caves are in rather inaccessible parts of the island. The better known are near Hastings, south of Hobart, and Mole Creek, in the north.

In New Zealand, the King Country contains the best known caves, notably the Waitomo Caves with their famous glowworm grotto. There are several well-known cave series in Malaysia. These include the Batu Caves near Kuala Lumpur, and the Ipoh Caves, both of which are in Malaya, and the Niah Caves in Sarawak.

Related Articles in the Australasian volumes include:

Batu Caves	Naracoorte Caves
Jenolan Caves	Waitomo Caves
Mole Creek Caves	Wombeyan Caves

CAWTHRON INSTITUTE at Nelson, in the South Island of New Zealand, is a research centre well-known for its work on *entomology* (the study of insects), fruit pests, and soils. It has been responsible for particularly valuable research on tobacco, hops, and apples. Thomas Cawthron (1833-1915), a Nelson businessman, left money in his will to set up an industrial and technical school, museum, and research institute.

CAZALY, ROY (1893-1963), was one of the most spectacular players of Australian Rules football. His high marking inspired crowds to shout "Up there, Cazaly!" when he leapt for the ball. The cry caught on, and, during World War II, Australian infantrymen shouted it as they went into battle. Cazaly was adept at one-handed marks. He played for St. Kilda in Victoria from 1909 until 1921, when he transferred to South Melbourne.

CELEBES. See SULAWESI in the other Australasian volume.

CENSORSHIP is widely practised in Australasia. Australian and New Zealand censorship laws are based largely on British ideas. They are designed to keep people from reading or seeing anything that might endanger public morals. Censorship in Indonesia is based on the five principles of the *Pantja Sila* (see GOVERNMENT OF INDONESIA [Principles of Government] in this volume).

In Australia, both federal and state laws govern censorship. The federal Department of Customs and Excise controls imported material. It refers questionable books to the National Literature Board of Review. This board, which was set up in 1967, examines them and recommends action to the minister of customs and excise. He decides whether the books should be banned. Exceptions are made for books of literary merit. If the importer, publisher, or author thinks a banned book is not objectionable, he may request that it be resubmitted to the board. The Commonwealth Film Censorship Board examines films entering Australia.

Censors in Australia ban material that is *blasphemous, indecent,* or *obscene* under the Prohibited Imports Regulations of the Customs Act. The minister of customs and excise has the right to ban material that unduly emphasizes matters of sex, horror, violence, or crime, as well as advertising matter relating to such material.

Each state controls literature produced in Australia, and a censoring authority in each state censors films made in Australia. In all states, possession or sale of obscene works may result in a fine or imprisonment. In addition, in New South Wales and Victoria, publishers and distributors have to register with the government. A court may cancel or suspend registration if a publisher or distributor breaks the laws governing censorship. Queensland and Tasmania have government boards to examine literature. The boards have the power to stop the distribution of objectionable literature.

In Indonesia, four departments control censorship of general literature—the ministries of information, religious affairs, and education, and the office of the prosecutor-general. Literary censorship includes restrictions on obscene material. Breaches of censorship laws may result in fines or imprisonment. The Ministry of Information, which controls censorship of newspapers, issues guides to newspapers. It has the power to suspend publication of a newspaper that offends censorship regulations three times within a given period. A commission of 36 members under the Department of Education censors films entering Indonesia. The Ministry of Information censors films produced in Indonesia.

In New Zealand, a censorship board, the Indecent Publications Tribunal, bans material that is indecent. It regards as indecent any work that describes or depicts matters of sex, horror, crime, cruelty, or violence in a manner injurious to the public good. It makes exceptions for books of literary merit. The tribunal was set up under the Indecent Publications Act of 1963. Before 1963, the New Zealand Customs Department controlled censorship of books entering the country. A government censor examines films.

CERUTTY, PERCY (1895-), an Australian trainer of athletes and teacher in the techniques of all sports, coached nine world record breakers. At his athletic centre at Portsea, in Victoria, he coached such athletes as Bill Baillie, Betty Cuthbert, Herb Elliott, Murray Halberg, John Landy, and Dave Stephens. He also coached the boxing champion Jimmy Carruthers and Australian champions in other sports, including sculling, wood-chopping, and golf.

Cerutty was born at Prahan, in Victoria. He became a top athlete in his teens. After a period of ill-health, he returned to athletics after 25 years. At the age of 51, he became the native Victorian marathon champion and record holder. He also held best times in Australia for 48, 80, and 96 kilometres (30, 50, and 60 miles). He also became one of the four Australians to cover 161 kilometres (100 miles) in less than 24 hours.

CESSNOCK (pop. 34,417) is a city in the Hunter River Valley, about 190 kilometres (118 miles) north of Sydney. For location, see NEW SOUTH WALES (map) in the other Australasian volume. It was proclaimed the City of Greater Cessnock in 1958, incorporating the townships of Cessnock, Kurri Kurri-Weston, Abermain, Bellbird, Branxton, and Greta within an area of 1,950 square kilometres (753 square miles).

Cessnock is an important centre for wine producers who have flourishing vineyards in the Hunter River Valley. The surrounding countryside also supports mixed farms and dairy farms. Coal-mining played an important part in the history of the region from the 1880s until the 1950s. But, in the early 1960s, many local mines closed down. Clothing factories, sawmills, an aluminium smelter, and light-engineering works in Cessnock employ some former miners. Others travel to work in Newcastle.

In 1886, the Australian geologist and explorer Sir T. W. E. David discovered coal deposits in the area where Cessnock now stands. Cessnock developed rapidly. Local miners suffered hardships during an economic depression in the 1930s. But the town became prosperous again during and after World War II.

CHAFFEY was the family name of two Canadian brothers who pioneered irrigation in Australia.

George Chaffey (1848-1932) was an engineer. He and his brother William established an irrigation scheme in California. They settled in Australia in 1886, and advocated irrigation in the Mildura district. In the same year, George signed an agreement with the Victorian government to begin work on the first irrigation scheme in Australia. But the irrigation company, Chaffey Brothers Ltd., failed financially after the depression of the 1890s. George returned to Canada in 1897. He worked on irrigation schemes in Ontario and California.

William Chaffey (1856-1926) acted as business manager to the irrigation company. He remained in Mildura and paid off the company's debts. He later became mayor of Mildura.

CHAMBERS, JAMES (1811-1862), was one of the sponsors of the expedition of the explorer John McDouall Stuart, who crossed the Australian continent from south to north. In 1860, Stuart named a sandstone monolith Chambers' Pillar in his honour. It is 33 metres (110 feet) high and 6 metres (20 feet) wide. It stands 48 kilometres (30 miles) north of the Northern Territory border. Chambers was born in Middlesex, England, and arrived in Adelaide in 1837. In 1857 he discovered copper on his farm at Burra in South Australia.

CHANGI was the prisoner-of-war headquarters on Singapore Island for Allied prisoners of the Japanese during World War II. It is situated on the north-eastern tip of the island and was occupied before the war by a British garrison. More than 50,000 British troops, including about 15,000 Australians, were taken prisoner by the Japanese in 1942. The initial daily food ration for each prisoner was 453 grams (one pound) of rice and extremely small quantities of meat, vegetables, flour, milk, and sugar. This food was gradually reduced. Large numbers of prisoners were employed by the Japanese in working parties on Singapore Island and the mainland. The prisoners started an education scheme to keep up their morale.

CHANNEL COUNTRY consists of a depressed tract of land that stretches south-west from the central Queensland ranges to Lake Eyre, in South Australia. The area becomes a vast, flat bed for such rivers as the Barcoo and Diamantina after occasional heavy rain in their upper reaches. These rivers flood the Channel Country, cutting channels across the plains and watering the black soil for many miles. Beef farmers fatten their cattle on the resulting rich pasture. See also FLOODS in this volume.

CHAPPELL is the name of three South Australian brothers who all became top class cricketers. Ian, Greg, and Trevor were all grandsons of former Australian test cricket vice-captain, Victor Richardson. **Ian Michael Chappell** (1943-), a batsman, captained Australia against England in one of the 1970-1971 tests, against Pakistan in 1972-1973, and against West Indies in 1973. He also captained Australia against World XI in 1971-1972. **Gregory Stephen Chappell** (1948-), a test batsman, first played for South Australia in the 1966-1967 season. Later, he became captain of Queensland. **Trevor Martin Chappell** (1952-), first represented South Australia in the Sheffield Shield team in the 1972-1973 season.

CHARLTON, BOY (1908-), was an outstanding Australian swimmer during the 1920s. He was born at North Sydney, and named ANDREW CHARLTON. In 1920, he defeated the Swedish swimmer Arne Borg at the Domain baths in Sydney. At the Olympic Games in Paris in 1924, he defeated Borg and won the 1,500 metres gold medal in a world record time. He was a world record holder over distances from 880 yards (805 metres) to 1,500 metres. He retired from swimming after the 1932 Olympic Games.

CHARLTON, EDDIE (1929-), an Australian snooker player, set a world record in 1967 by making consecutive breaks of 135 and 137 without his opponent having a shot. His running break of 272 also set a world record. He won the world match-play championship in 1968. He also won the international championship in 1972.

CHARTERS TOWERS (pop. 7,529) is a city about 128 kilometres (80 miles) south-west of Townsville in northern Queensland. For location, see QUEENSLAND (map) in the other Australasian volume. The district was once famous for gold, but it now produces beef and dairy cattle, fruit, and vegetables. Charters Towers is recognized as the educational centre for northern Queensland, with six major denominational colleges and a state high school. Jupiter Mosman, an Aboriginal boy, is credited with the discovery of gold in 1872. The find led to a rush. The city which grew up was named after W. E. Charters, a mining warden. The population reached 33,000 and miners extracted gold worth more than $A 60 million before the gold declined in 1916.

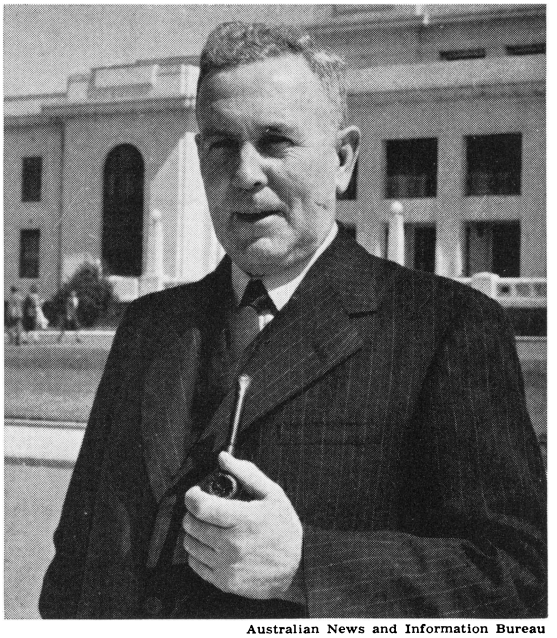
CHAUNCY, NAN (1900-1970), was an Australian author. The background in nearly all her books is the rugged Tasmanian bush country and shoreline that she loved so well. She won the Australian Children's Book Council Book of the Year Award three times, with *Tiger in the Bush* (1958), *Devil's Hill* (1959), and *Tangara* (1961). In 1962, *Tangara* was included in the European Hans Christian Andersen Honour List. Her books have been translated into 14 languages and some into braille. A film was made from *They Found a Cave*. NANCEN BERYL MASTERMAN was born in Middlesex, England, and settled in Tasmania as a child of 13.

CHAUVEL, CHARLES (1897-1959), an Australian film producer, made the film *Jedda* about an Aboriginal girl in 1954. His other films included *Forty Thousand Horsemen* and *Rats of Tobruk*. CHARLES EDWARD CHAUVEL was born at Warwick in Queensland.

CHAUVEL, SIR HARRY (1865-1945), an Australian soldier, commanded the Australian Light Horse Brigade in Egypt and Gallipoli during World War I. He led his cavalry force in victorious charges at Beersheba, Megiddo, Damascus, and Aleppo. He was born at Tabulam, in New South Wales, and named HENRY GEORGE CHAUVEL. From 1922 to 1930, he was chief of the general staff.

CHELMSFORD, LORD (1868-1933), a British statesman, became famous as an administrator in Queensland, New South Wales, and India. From 1905 to 1909, he was governor of Queensland, and did much to assist the state government in eliminating kanaka labour from the canefields. Between 1909 and 1913, he was governor of New South Wales and from 1916 to 1921, he was Viceroy of India. FREDERICK JOHN NAPIER THESIGER CHELMSFORD was born in London.

CHIFLEY, BEN (1885-1951), was prime minister of Australia from 1945 to 1949. He became prime minister and leader of the Labor party shortly after the death of John Curtin in July, 1945. As prime minister, Chifley did much to extend federal activity in education, social services, and arbitration and conciliation. In 1947, he tried to nationalize private trading banks, but the High Court declared the move to be unconstitutional. Trade unions became dissatisfied with Chifley's government. Coal-miners, shipbuilders, and waterside workers struck work. In 1949, Chifley aroused controversy by sending troops to mine coal during the coal strike. Opinion swung against Labor, and it lost the 1949 general elections. Chifley then led the opposition until his death.



Australian News and Information Bureau

Ben Chifley became a symbol of success to many Australians. An engine-driver, he rose to become prime minister.

Early Life. Chifley was born at Bathurst, in New South Wales, and named JOSEPH BENEDICT CHIFLEY. He joined the New South Wales Railways at the age of 17 and became an engine-driver. He immediately took an active part in union affairs and appeared for the railway unions before industrial tribunals. He also helped to found the Australian Federated Union of Locomotive Engineers. In 1917, he was dismissed for his part in a general strike.

Political Career. In 1928, Chifley was elected to the federal House of Representatives for Macquarie, in New South Wales. He became minister for defence and assistant to the treasurer in 1931, but lost his seat in the 1931 general elections. While out of parliament, he served on the royal commission on banking, which sat from 1935 to 1937. In 1940, he regained the seat for Macquarie. After the 1943 general elections, Curtin appointed him treasurer. He was a member of the war cabinet.

CHIMBUS are a people who live among the high central ranges of Papua New Guinea. There are about 60,000 Chimbus. They live north of the Wahgi River and speak the main Chimbu language. They are excellent gardeners, and coffee is now an important Chimbu crop.

The Chimbu valley is the largest area of high population density in New Guinea. In recent years, about a million other people who live in a chain of connected valleys in the New Guinea highlands have been called Chimbus. They speak many languages that come from a single stock spoken by 750,000 people—the largest language group in New Guinea.

CHINESE. See GOLD-MINING in this volume.

The Mitchell Library

Caroline Chisholm's humanity and guidance helped many pioneers to establish themselves in Australian society.

CHISHOLM, CAROLINE (1808-1877), devoted a great part of her life to the welfare of immigrants to Australia. She helped migrants who made the long journey from overcrowded conditions in Britain to a new life in Australia. She also encouraged migrants to leave the crowded towns and settle the farming lands of Australia. Many people believe that she was Australia's greatest woman pioneer.

Early Life. Caroline Chisholm was born at Wootton, in England. Her maiden name was CAROLINE JONES. As a child, she noticed the suffering caused by the Industrial Revolution, and later did much to help the victims (see INDUSTRIAL REVOLUTION in the main volumes). In 1830, she married Archibald Chisholm, a captain in the British East India Company. He sympathized with her desire to help others, and later helped her in her welfare work. He was assigned to India in 1832, and Caroline founded a school in Madras. They then moved on to Australia, landing in 1838, and settled in Sydney.

Helping Immigrants. From 1820, the British government began encouraging migration to Australia as a means of reducing widespread unemployment in Britain. From 1831, it gave assistance to approved migrants who would settle the land. But most would-be migrants lived in the cities of Britain. When they reached Australia, most of them preferred to stay in the more settled areas, instead of moving into the country, where jobs were plentiful. The immigrants found themselves overcrowded and unemployed, just as they had been in Britain.

Caroline Chisholm became deeply concerned about the difficulties that faced immigrants, especially young girls and families. Using much of her own money, and with some official help from the governor, Sir George Gipps, she opened a Female Immigrants Home in Sydney in 1841. In the home, she gave shelter to arriving women migrants.

She worked to find suitable employment for the migrants. She corresponded with settlers throughout New South Wales, finding out what jobs were available, and arranging wages, rations, and conditions of employment. She formed parties of people and personally found employment for them with settlers of good character. Colonists could often see her, seated on a dray, accompanying young girls to their new jobs. She made long journeys into the country, often with 30 to 40 young women immigrants at the one time. By 1846, she had looked after more than 11,000 migrants.

In 1846, she returned to Britain, where she spoke to the families of people who had already emigrated, and to others seeking advice about emigrating. She was concerned about children who had been separated from parents who had migrated or been transported to Australia. She worked untiringly to help restore these children to their parents.

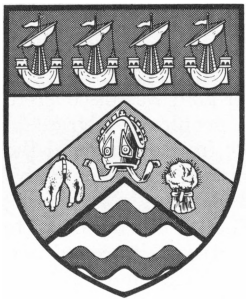
Settling the Land. Caroline Chisholm believed that young migrants would be best for Australia. She also believed that they should settle on their own small farms. In 1849, she founded the Family Colonization Loan Society—a society through which deserving families could pay for their passage in instalments after they had arrived in Australia. This money then helped to pay for the passage of other families. Caroline Chisholm also held regular meetings to acquaint would-be settlers with the conditions in the colony and with each other. Archibald Chisholm, as secretary of the society, travelled to Australia in 1852 to supervise the arrival of the settlers.

During the early 1850s, after gold was discovered, no one needed to encourage people to migrate to Australia. Thousands of people from all parts of the world flocked to the Australian gold-fields. Archibald Chisholm worked in Adelaide and Melbourne, helping with the increased number of migrants. He arranged shelter for them on arrival, inspected and reported on ships, and gave advice on travel and equipment. Caroline remained in London, making arrangements for intending migrants. In 1854, she travelled to Australia to join her husband. She toured the Victorian gold-fields and set up shelters for miners and their families. The shelters became known as *Chisholm's Shakedowns.*

Later Life. In 1857, Caroline Chisholm began a series of letters in the Melbourne newspaper *Argus* for the information of British workmen. But, in the same year, she became ill. She and her family lived at Kyneton, near Melbourne, for a brief period, then moved to Sydney in 1859. In Sydney, she continued to work for the rights and comforts of the underprivileged. She gave lectures on settling the land, early closing for shops, better housing conditions, and shorter working hours. But her health declined, and she gave up political activities. In 1862, she opened a boarding school for young ladies at Newtown, in Sydney. In 1866, she returned to Britain with her family. She died in London.

N. Z. Government Tourist Bureau

The Christchurch Town Hall Complex beside the Avon River was opened in 1972. This striking modern building provides for a wide range of cultural and commercial uses. It includes a restaurant overlooking the river, an auditorium seating more than 2,300 people, and a theatre seating more than 1,000. It also has a banquet hall and a conference room.



Christchurch

CHRISTCHURCH (pop. 275,968) is the largest city in the South Island and one of the largest cities in New Zealand. It ranks after Auckland and Wellington in the population of its *metropolitan area* (city and suburbs). But Christchurch has 165,637 people within its central city area, a greater number than any other New Zealand city.

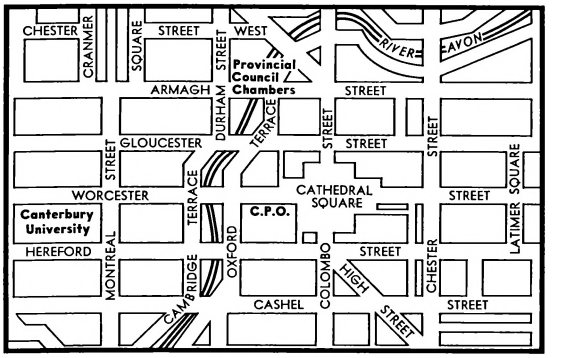
Christchurch is often called "the most English city outside England", because of the English character of its public buildings, its rivers, and its many parks. Many Christchurch people are descended from the 773 pioneers who landed in 1850 from the first four ships of the Canterbury Association, an association of British churchmen and landowners.

Location, Size, and Description

Christchurch lies near the east coast of the South Island. It is 6 kilometres (4 miles) from the sea, and has an area of 285 square kilometres (110 square miles). The city is built on flat land, much of which was originally swamp. Parts of Christchurch are only 6 metres (20 feet) above sea level. Most houses are timber bungalows.

Two narrow, shallow, and slow-moving rivers, the Avon and the Heathcote, flow through Christchurch. The Avon, with its willow-planted, ornamental banks, is one of the attractions of Christchurch as it winds past the city's streets and buildings, parks, and gardens. The Heathcote flows through the southern suburbs. Both rivers flow into an estuary 10 kilometres (6 miles) from the city.

Christchurch has about 50 parks, with a total area of more than 1,620 hectares (4,000 acres). The largest is Hagley Park, bordering the city. With the adjoining Botanic Gardens, it covers about 198 hectares (490 acres). Queen Elizabeth II Park,



Hagley Park is the largest park in Christchurch. It covers about 198 hectares (490 acres). Hockey is an ever-popular sport in the park.

the second biggest, has all-weather athletics tracks and many playing fields. More than 10,000 trees are planted in the city and its suburbs.

Cultural Life

Christchurch is one of the main cultural centres of New Zealand. It has well-endowed churches and schools and strongly established musical, dramatic, and art organizations.

Education. Christchurch has 80 primary schools, serving a total of 32,000 children, and 24 secondary schools with 18,000 pupils. Its educational institutions include Christ's College, founded in 1850, where the boys still wear flat straw hats known as *boaters;* Christchurch Boys' High School, founded in 1881; and St. Andrew's College, founded in 1916.

The University of Canterbury has nearly 4,000 students. It has faculties in arts, engineering, fine arts and music, law, and science. Another campus is located at Ilam, 5 kilometres (3 miles) from the city. Lincoln College, 21 kilometres (13 miles) south-west of Christchurch, provides courses for degrees and diplomas in agriculture.

Architecture. The city's most important architectural feature is the Gothic spire of the Anglican cathedral, the Cathedral of All Saints, in Cathedral Square. Other notable buildings include the Provincial Council Chambers, also in the Gothic style; the Supreme Court; the university; and the Christchurch and Canterbury clubs. The biggest building in the Classical style is the Roman Catholic cathedral.

Notable churches include Holy Trinity, built in 1855 at Lyttelton; St. Michael and All Angels, one of the first churches on the Canterbury plains; and St. Andrew's, built in 1857.

Libraries. Christchurch has a public library, with reference, lending, and children's sections, and branch libraries in all its suburbs. It also has a school library service and a service that provides books for readers in nearby country districts.

Museum and Art Galleries. Adjoining the Botanic Gardens is the Canterbury Museum, established in 1870. Its collections include examples of Maori and Polynesian art, natural history exhibits, and pioneer archives. The Robert McDougall Municipal Art Gallery and the gallery of the Canterbury Society of Arts display New Zealand and overseas collections.

Drama and Music. Christchurch's main theatres are the Civic Theatre, controlled by the City Council; the Majestic Theatre; the Theatre Royal; and the theatre of the Canterbury Repertory Theatre Society. The city's leading choirs, the Christchurch Harmonic Society and the Royal Christchurch Musical Society, usually perform in the Civic Theatre.

Recreation

New Brighton, about 8 kilometres (5 miles) from the city, and Sumner, about 12·8 kilometres (8 miles) from the city, have excellent beaches. An Olympic-size swimming pool is within the city. Christchurch has many sports grounds, including Hagley Park, Lancaster Park, and English Park. It has more than 150 playing fields in parks and reserves. Places to visit include the Canterbury Museum.

Industry and Trade

Christchurch has nearly 1,300 factories, most of them within a 4·8 kilometre (3 mile) radius. Products include carpets, crystal glass, footwear, frozen meat, heavy machinery, milled grains, processed food, and woollens. Christchurch's factories also produce brushes, clothing, electrical goods, fertilizers, gelatine, leather, and pre-stressed concrete units. The city also has a brewery. The city is the base for the United States expeditions to the Antarctic known as *Operation Deep Freeze.*

Lyttelton Harbour occupies a depression that was once the crater of a volcano. It is 14 miles from Christchurch by road over the Port Hills and 7 miles by road and rail tunnels through the hills. The road

tunnel, which is 2 kilometres ($1\frac{1}{4}$ miles) long, was opened in 1964.

Transport and Communications

Christchurch has railways and roads running to the north, the south, and the west. Local transport is mainly by buses. Because of its flatness, Christchurch has a large number of cyclists in proportion to its size. About 40 city and suburban bridges cross the Avon and Heathcote rivers. Christchurch's chief airport is at Harewood, 6 miles west of the city.

Christchurch has two daily newspapers, one published in the morning and the other in the evening. The city has a television station and four broadcasting stations, all operated by the New Zealand Broadcasting Corporation.

Public Services

The City Council buys electric power from the government and markets it to consumers. The council also supplies water, but many people obtain their supplies from artesian wells, which are common in the area (see ARTESIAN WATER in this volume). A privately owned company provides gas.

Government

Christchurch is governed by a City Council and other local bodies. The council is responsible for bridges and roads, libraries, parks and reserves, playing fields, traffic, and electricity and water supplies. It also controls some housing development, pensioners' apartments, plantations, road houses, and tea rooms.

The Lyttelton Harbour Board administers the city's port of Lyttelton. The Christchurch Transport Board operates buses throughout the city and suburban areas. The Christchurch Drainage Board controls drainage and sewage disposal. The North Canterbury Hospital Board supervises hospitals and old people's homes. Suburban councils share some responsibilities with the City Council. The people elect the mayor and local bodies every three years.

History

Early Days. In 1829, William Wiseman, captain of the whaling ship *Elizabeth,* visited what is now Lyttelton Harbour and named it Port Cooper after one of the owners of his ship. The harbour was later named Lyttelton after Lord Lyttelton, a member of the Canterbury Association.

A German-born whaling captain from Australia, George Hempleman, with his wife, established the first European settlement at Peraki Bay, in 1837. Another whaling captain, William Barnard Rhodes, established a homestead and farm at Purau, in 1839. Rhodes, who was born in Britain, landed the first cattle in the South Island. He later financed the successful early farming ventures of his brothers Robert and George. Two Scottish brothers, John and William Deans, arrived from Australia in the early 1840s to establish the first farm at Riccarton, near the city. They took with them the first sheep.

The Canterbury Association. British settlers of the Canterbury Association, who reached New Zealand in 1850, founded Christchurch. The members of the association were influential churchmen and landowners. Their object was to establish a typical English church community in New Zealand.

Joseph Thomas, the association's advance agent, completed much preliminary surveying and road-building before the first settlers arrived. Edward Jollie surveyed Christchurch and established its characteristic grid pattern.

In April, 1850, John Robert Godley arrived to take up the position of resident chief agent for the association. He left in 1852. By 1851, work was completed on the Port Hills Bridle Path, over which the 773 first settlers had trudged with their belongings the year before. New Zealand's first railway, from the city to the mouth of the Heathcote River, was built in 1863. A rail tunnel linking Lyttelton and Christchurch was built in 1867.

See also CANTERBURY; GODLEY, JOHN ROBERT; and HISTORY OF NEW ZEALAND in this volume.

CHRISTMAS BELLS is the name given to a *genus* (group) of tufted, summer-flowering herbs which grow only in Australia. Three grow in eastern and one in Western Australia. The eastern ones have waxy, red, yellow-tipped, six-pointed bells. The smallest grows only in New South Wales. The two larger ones grow in Queensland and New South Wales coastal areas. The Tasmanian Christmas bells are grown in peaty soils from coastal locations to alpine areas.

Scientific Classification: Christmas bells belong to the plant family *Liliaceae* and the genus *Blandfordia.*

CHRISTMAS BUSH is a name given to several kinds of Australian plants. The *New South Wales Christmas bush* is the best-known kind. It is a small tree or tall shrub that grows in coastal gullies and open forests. Its shiny leaves have three toothed leaflets. Its inconspicuous white flowers fall soon after blossoming. Then, early in December, the plant's sepals enlarge and turn red, forming so-called "flowers".

Scientific Classification. The New South Wales Christmas bush belongs to the family *Cunoniaceae.* It is genus *Ceratopetalum*, species *C. gummiferrum.*

CHRISTMAS ISLAND is the name of two islands. One is in the Line Islands group in the Pacific Ocean. It is the largest of the group. The other Christmas Island is an Australian territory in the Indian Ocean. It lies about 355 kilometres (220 miles) south of Java and 2,625 kilometres (1,630 miles) north-west of Fremantle. The island covers about 135 square kilometres (52 square miles) and has a population of 3,381, consisting of Malays, Chinese, and Europeans. Phosphate mining is the main industry. The British administered the island until 1958, when they transferred it to Australia.

CHURCHILL, CLIVE (1927-), was one of Australia's greatest rugby league full backs. He was brilliant in both defence and attack. Churchill was born in Newcastle and played for leading rugby league clubs, including Newcastle and South Sydney. From 1950 to 1955, he captained the Kangaroos, Australia's national team. He represented Australia in a total of 34 test matches. Churchill retired in 1959, and was appointed coach of the Kangaroos.

CILENTO is the family name of three distinguished Australians, father, mother, and daughter.

Sir Raphael West Cilento (1893-), a barrister, became the director of the Australian Institute of Tropical Medicine. He was born at Jamestown, in South Australia, and studied at Adelaide University. He directed the UN Division of Refugees in 1946.

Phyllis Dorothy, Lady Cilento (1894-), founded the Queensland Mothercraft Association. A doctor, she served as a medical officer in Malaya and at Rabaul. She was born in Sydney.

Diane Cilento (1932-) became a stage and film actress. She was born at Toowoomba, in Queensland, and studied acting at the American Academy of Dramatic Art, in New York, and at the Royal Academy of Dramatic Art, in London.

CITIES. For lists of the main cities of Australasia, see the lists with the various country articles, such as AUSTRALIA, in the main volumes.

CITIZEN MILITARY FORCES (CMF). See ARMED SERVICES OF AUSTRALIA in this volume.

CIVIL DEFENCE. See STATE EMERGENCY SERVICES in the other Australasian volume.

CLARE (pop. 2,105) is a town in South Australia located 136 kilometres (84 miles) north of Adelaide.

The average annual rainfall is high (620 millimetres or 24 inches). For this reason Clare is the centre of a rich farming disrict. Edward Gleeson and John Maynard were the first settlers in the area in 1842. Gleeson named the district after his birthplace, County Clare, Ireland.

CLARENCE is the name of two rivers, one in Australia and one in New Zealand. The Australian river rises on the southern slopes of the Macpherson Range in north-eastern New South Wales. It flows into Shoal Bay near Yamba, on the northern coast of New South Wales. The city of Grafton is the main centre in the Clarence Valley.

In New Zealand, the Clarence flows through the north-eastern part of the South Island. It is the second longest river in the South Island. It rises on the eastern slopes of the Spenser Mountains and flows 200 kilometres (125 miles) to its mouth on the north-eastern coast.

CLARENCE STRAIT is a stretch of water that separates Melville Island, north of Darwin, from the mainland coast of northern Australia. It lies between the Timor Sea and Van Diemen Gulf. A group of islands, the Vernon Islands, lies in the Strait.

CLARK, CHARLES MANNING HOPE (1915-), an Australian historian, became professor of history at the Australian National University in 1949. His best-known works include *Select Documents in Australian History 1788-1850* (1950), *Settlers and Convicts* (1953), *Select Documents in Australian History 1851-1900* (1955), and *Sources of Australian History* (1957). In 1973, he completed a major work in three volumes entitled *A History of Australia.* He was born in Sydney.

CLARK, MAVIS THORPE (1924-), is the pen-name of MAVIS LATHAN, an outstanding children's novelist. The majority of her books are pioneering stories dealing with the difficulties that faced new settlers in Australia. Character handling is sympathetic and full of human interest. *Blue Above the Trees* (1965), her best-known work, concerns the heroic efforts of an early Gippsland family to win farming land from the rain forest.

CLARK, RUSSELL (1905-1966), a New Zealand artist, became a lecturer in art at Canterbury University College in 1945. He became well known for his illustrations for periodicals, including the *New Zealand Listener,* a weekly magazine. Clark was born at Christchurch and educated there.

CLARKE, SIR ANDREW (1824-1902), a noted administrator, became surveyor-general of Victoria in 1853. As a minister in the colony's first government, he introduced measures to establish local bodies and to expand the railways. He was born at Southsea, in England, and sailed to Australia in 1846.

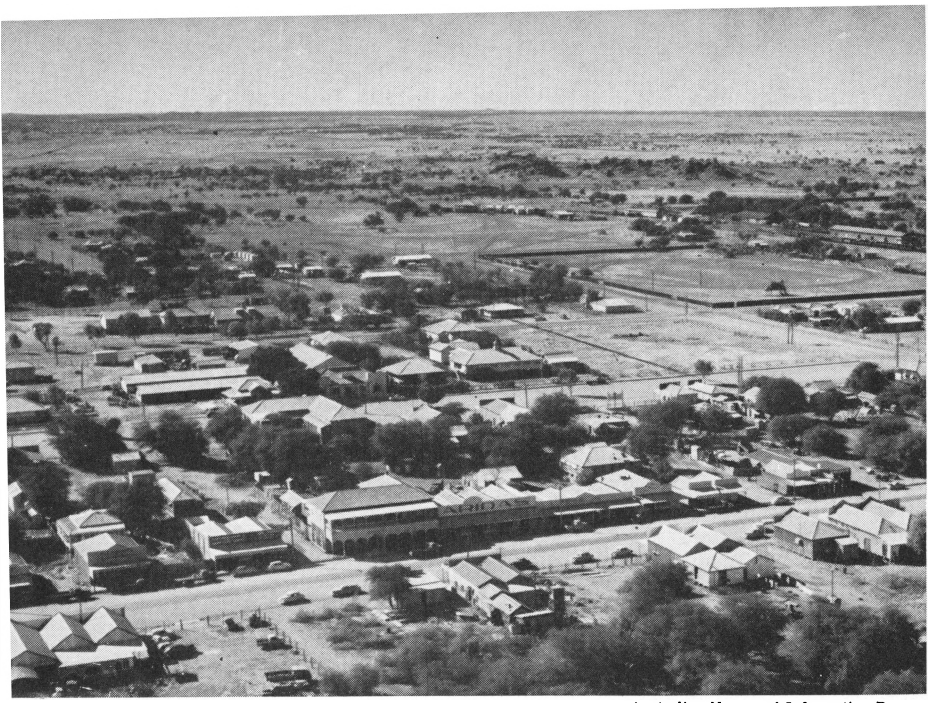
CLARKE, DON (1933-), one of New Zealand's greatest rugby union players, was full back for the All Blacks for almost 100 matches. He became internationally known as a goal-kicker. He could kick goals from a distance of 64 metres (70 yards). In his 226 first-class matches, he scored a record 1,851 points. Clarke, who was born at Pihama, in Taranaki province, retired from rugby in 1965.

CLARKE, MARCUS ANDREW HISLOP (1846-1881), was a novelist and journalist who wrote the Australian classic *For the Term of His Natural Life.* Originally called *His Natural Life,* the book is a vigorous social protest about the sufferings of convicts in early Tasmania. Clarke originally wrote the story in serial form for the *Australian Journal.* It was published as a book in 1874.

Clarke was born in London, the son of an Irish lawyer. He moved to Australia when he was 17 years old. He worked in the Bank of Australasia and as a secretary and on a sheep station. But he hated routine employment, and soon left both positions. He became a successful journalist, writing for and editing several magazines. His first novel *Long Odds* appeared as a serial in the *Colonial Monthly,* a magazine he owned and edited.

CLARKE, RON (1937-), an Australian athlete, established himself during the mid-1960s as one of the greatest long-distance runners in history. During a tour of the United States and Europe in 1965, he became the first man in the world to run 3 miles (5 kilometres) in less than 13 minutes, and broke 11 other world records in 16 races. He set records in 5,000 metres, 10,000 metres, 6 miles (10 kilometres), and 20,000 metres. Clarke was born in Melbourne. He set a junior world mile (1·6 kilometre) record in 1956, but withdrew from running to devote more time to his career. He returned to important contests in 1962. He won the bronze medal in the 10,000 metres at the Olympic Games in 1964. He retired from athletics in 1970.

Ron Clarke
Brian McArdle



Cloncurry, in Queensland, was in the centre of one of the richest copper outcrops in the world. Copper mining declined when the world price for copper fell in the 1920s. The pastoral industry is now more important.

Australian News and Information Bureau

CLIMATE. See AUSTRALIA (Climate) in the main volumes. See also the *Climate* sections of the state articles in the Australasian volumes.

CLOISTERS in Perth was built as the Bishop's Collegiate School in 1858 by Bishop Hale, the first Anglican bishop of Western Australia. It cost £1,000 and was founded on the style of St. Peter's, in Adelaide, and The Kings School, in Parramatta. Rev. F. Lynch was the temporary headmaster until the arrival of Rev. G. H. Sweeting in the following October. In 1865, it was handed over to the Anglican school authorities. In 1872, the school was closed because it did not have enough students. In 1879, the building became a girl's secondary school. It closed in 1888 because of financial difficulties. The building was then used as two semi-detached houses. In 1901, Bishop Riley established the Clergy Training College there, and by 1918, it had become a university hostel. For many years, the building has been known as *the cloisters* because of cloistered verandahs on the north and south sides of the building.

CLONCURRY (pop. 3,609) is a town in northwestern Queensland, on the Cloncurry River, about 120 kilometres (75 miles) east of the mining centre of Mount Isa. Cloncurry lies in the northern foothills of the Selwyn Range, about 195 metres (640 feet) above sea level. It is an important marketing centre for sheep and cattle stations in the district. It is also the outlet for the sheep and cattle industries of the region around the Gulf of Carpentaria. Cloncurry has an airport. From 1880 to the 1920s, Cloncurry was the centre of a thriving copper-mining industry. A phosphate discovery was made nearby in 1966.

CLONCURRY is a river in western Queensland that flows into the Gulf of Carpentaria. It is one of the major tributaries of the Flinders River. It rises in the Selwyn Range and flows north-west and north through the town of Cloncurry.

CLUNE, FRANK (1893-1971), an Australian writer, became well-known for his books of travel, adventure, history, and biography. He was born in Sydney and named FRANCIS PATRICK CLUNE. Wounded at Gallipoli in World War I, he was an honorary major in World War II. His first book was *Try Anything Once: the Autobiography of a Wanderer* (1933). His others include *Dig* (1937), the story of Burke and Wills; *Ben Hall the Bushranger* (1947); *Wild Colonial Boys* (1948); *Martin Cash* (1955); *Journey to Pitcairn* (1966); *Scallywags of Sydney Cove* (1968); and *The Scottish Martyrs* (1969).

CLUNIES-ROSS is a family connected with Cocos Island in the Indian Ocean. **John Clunies-Ross** (?-1854) of Shetland, Scotland, settled with his family on Cocos Island in 1827, and imported Malayan labour. His son John and grandson George (1842-1920) established a simple legal code and currency, and encouraged the copra industry. The British government transferred Cocos Island to Australia in 1955. The Clunies-Ross family continued to retain ownership of their estate on Home Island.

Sir Ian Clunies-Ross (1899-1960) was a veterinary scientist and scientific advisor on international affairs. He was born in Bathurst in New South Wales. His career with Council for Scientific and Industrial Research (CSIR) began in 1926 as a parasitologist. When the CSIR was re-organized in 1949, he became its first director. Sir Ian was the Australian member of the Wool Secretariat in London from 1937 to 1940. He served as a delegate to the League of Nations in 1938.

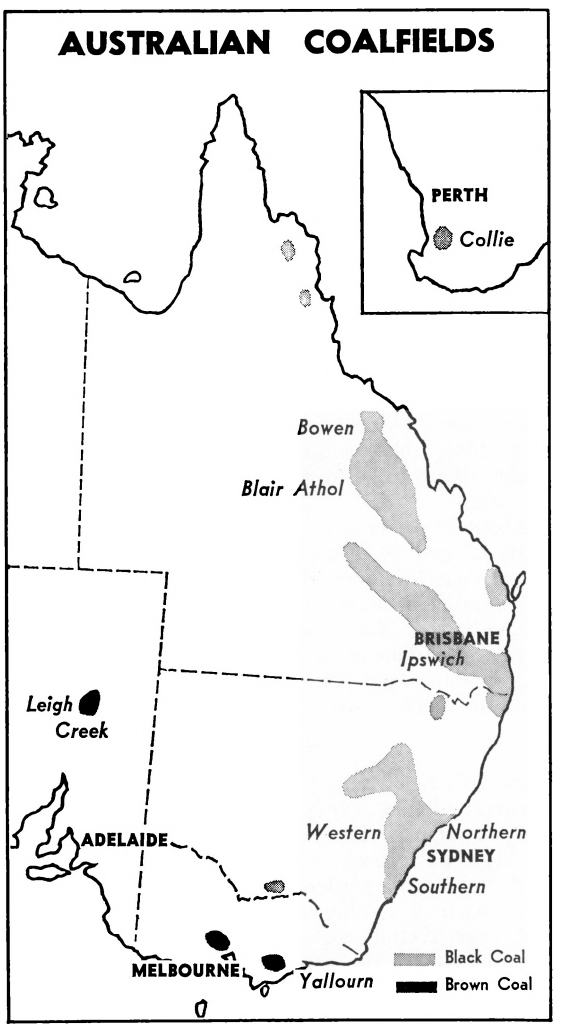
CLUTHA is a large river in the South Island of New Zealand. The main stream rises from Lake Wanaka. It flows 338 kilometres (210 miles) southeastwards into the Pacific Ocean, not far from Balclutha on the eastern coast of Otago. The river was originally known as the *Molyneux*. Thousands of gold-miners swarmed to the Clutha and its tributaries during the 1860s.

Australian News

Machines Dig Coal in a New South Wales mine. Australian mining is highly mechanized.

COAL-MINING is an important industry in Australia. In New Zealand and in Indonesia the industry has declined. But experts expect production to increase in the future. Little coal-mining takes place in Malaysia and none in Singapore.

Australia is the only one of the five countries to have a large coal industry by world standards. It is the world's ninth largest producer of black coal and a major contributor to world export trade. It produces 61 million tonnes (about 60 million tons) of black coal and 24·4 million tonnes (about 24 million tons) of *lignite* (brown coal). The coal produced in Australia is worth about $A 370 million. Coal and iron ore are Australia's most valuable minerals. Each represents about a quarter of the value of all mineral production.



New Zealand produces about 2,030,000 tonnes (about 2 million tons) of coal a year. It is worth $NZ 14,000,000. Coal is second in value to construction materials among minerals produced in New Zealand.

Australia exports more than 28·4 million tonnes (about 28 million tons) a year. The main customer is the Japanese steel industry. But Australia also exports coal to Europe and elsewhere. The other countries in the region have no significant trade in coal, either as an import or as an export.

The Australian black coal industry employs more than 18,000 people. About 3,200 of these workers are employed at open cut mines and 9,300 work below ground in underground mines. The lignite mines employ a further 1,400 workers. New Zealand mines employ about 1,700 people of whom 300 work at open cuts. The Australian coal industry is one of the most highly mechanized in the world. Specialized machines dig, load, and transport more than 99 per cent. of the coal.

Where Coal is Found

Australia. Australian coal resources are classified into two categories. The first category consists of reserves that can be mined with present-day machines. Experts have substantial amounts of information on coal seams in this category. The second category consists of the reserves in coal-bearing lands where drilling has been inadequate, and for which little information is available.

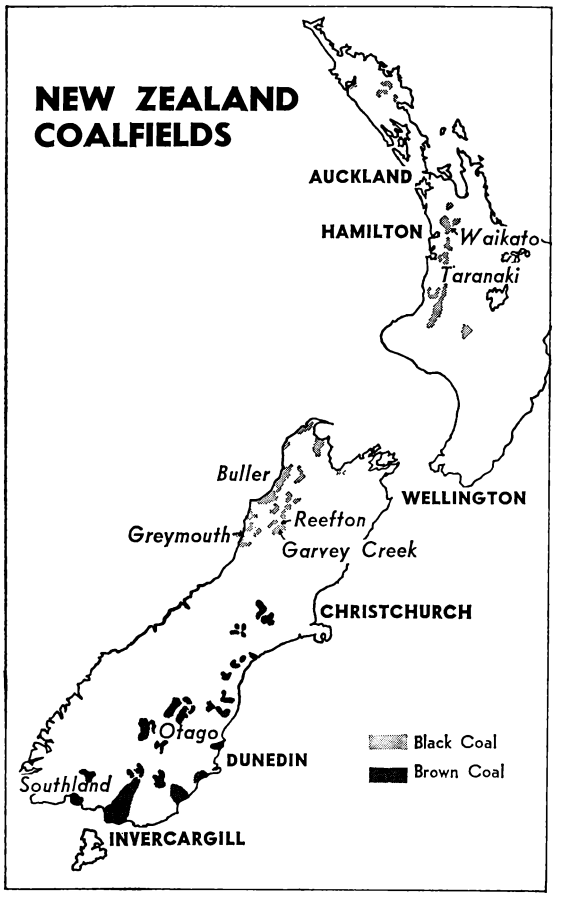
Total resources of black coal are estimated at not less than 203,000 million tonnes. About 25,400 million tonnes of this amount are in the first category. The major reserves are in New South Wales and Queensland. Victoria is estimated

to have 87,400 million tonnes of lignite of which 10,200 million tonnes could be won economically for power generation on the basis of present costs and technology.

Coal-mining is a long established industry in New South Wales and there are highly mechanized underground mines near Newcastle, Wollongong, and Lithgow. Around Singleton open cuts predominate. Output is close to 38·6 million tonnes. The major markets for New South Wales coal are local power stations, the Australian steel industry, and the export trade. In Queensland the older coal-mining area near Ipswich was over-shadowed in the 1970s by rapid development of the Bowen Basin in central Queensland. Here most development was by way of open cuts. New railway lines and new port facilities at Hay Point and Gladstone were developed to handle large exports of coking coal. Locally, coal is used for power generation and in the treatment of bauxite and copper ores and to supply the Australian steel industry. Queensland mines produce about 19·3 million tonnes of coal a year.

Black coal is also mined at Collie in Western Australia, at Leigh Creek in South Australia, and near Fingal in Tasmania.

The Latrobe Valley in Victoria and several areas to the west of Port Phillip produce all the lignite mined in Australia. This type of coal is soft and contains much water. As a result it is a much less efficient fuel than black coal. But the seams are thick and the covering is shallow. Its value at the mine is about $A 1 per tonne. The Electricity Commission of Victoria operates the largest lignite mines and these mines supply coal to nearby power stations at Morwell and Yallourn. The commission also makes briquettes from the lignite for power house, industrial, and domestic use. Lignite is also used by several local industries to produce steam.



Indonesia. Much of the coal in Indonesia is of poor quality and is in places that are not easily accessible. Coal is mined in West Sumatra and in South Sumatra. Total output is about 203,000 tonnes a year.

Malaysia. Geologists have found isolated deposits in the Malay Peninsula and elsewhere, but no coal mines operate there today.

New Zealand has a number of scattered deposits of both black and brown coal. Measured reserves of black coal total 305 million tonnes. But experts guess the country has about 559 million tonnes. Measured reserves of brown coal are less than 20·3 million tonnes but experts guess total reserves could amount to 381 million tonnes.

Sixty per cent. of New Zealand's coal is produced in the North Island areas of Waikato and Taranaki. A further 18 per cent. comes from the Southland and Otago areas. Most of the rest comes from old mining areas around Greymouth, Reefton, and Buller.

How Coal is Used

Coal consumption in Australia is increasing. More than half the black coal is used by electric power stations. Factories of various kinds burn over 3,050,000 tonnes a year.

The second major use for black coal is as a raw material for the production of coke, with coke works taking nearly 10·2 million tonnes of coal. Most coke works are located at the steelworks where coke is used in the production of pig iron.

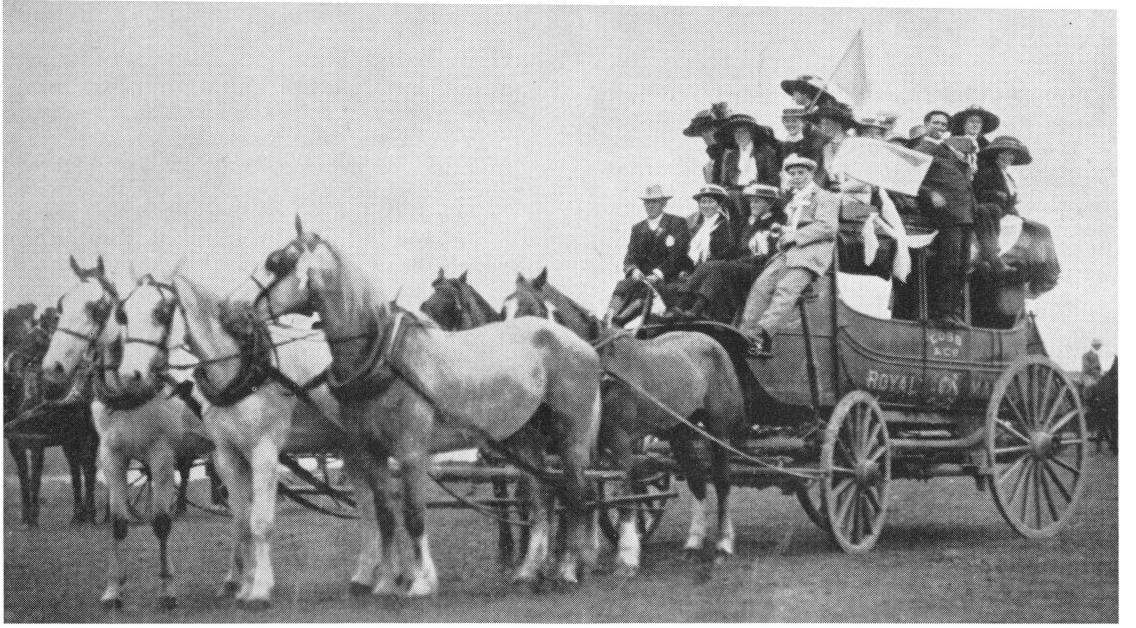
About 77 per cent. of the lignite produced in Australia is used by electric power stations. A further 13 per cent. is converted into briquettes, which are a clean and convenient form of fuel for household use.

The bulk of New Zealand's coal is used as a fuel in power stations or in factories. But household use is also important. The steelworks near Auckland use a non-coking coal.

History

In 1797, Lieutenant John Shortland made the first discovery of coal near Newcastle while searching for escaped convicts. The first mining was attempted on the Hunter River where an unsuccessful attempt was made to form a settlement in 1801. In 1797, five survivors from a shipwreck discovered coal at Coalcliff near Wollongong. Later the same year, the explorer George Bass confirmed their discovery.

See also COAL, in the main volumes, and its list of related articles.



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Cobb and Co.'s Coaches operated passenger and mail services in Australia from 1853 to 1924. The light coaches were drawn by teams of from 5 to 12 horses.

COATES, GORDON (1878-1943), was prime minister of New Zealand from 1925 to 1928. The Reform party government that he led was defeated in 1928, when the country was facing an economic depression. In 1931, he became minister of finance in a coalition government. He applied many new ideas in an attempt to relieve the effects of the depression, but his financial measures were unpopular. In 1940, he became a member of the joint Labour-National war cabinet. He remained in office until his death. Coates was born at Matakohe, in Northland, and named JOSEPH GORDON COATES.

COBAR (pop. 1,702) is a copper-mining town 570 kilometres (354 miles) north-west of Sydney in mid-western New South Wales. Copper was first discovered in the area in 1869. Only one mine operates today. Copper ore is mined by cut-and-fill methods at depths up to 600 metres (1,968 feet). There are three separate lines of lode at Cobar. Each line of lode is up to 300 metres (984 feet) long and from 6 to 10 metres (20 to 33 feet) wide. The lines of lode dip almost vertically. Where the ore is mined, it consists largely of massive copper sulphides. The three lines of lode are all within deformed sedimentary rocks of the Cobar group.

COBB AND CO. organized the first reliable transport system in Australasia. Its horse-drawn coach services operated for a period of 70 years in Australia and New Zealand.

In 1853, Freeman Cobb, with three other American businessmen, established Cobb and Co. to provide organized public transport in Victoria. The company began its first service between Melbourne and Port Melbourne in 1853. In the same year, it began another run between Melbourne and Bendigo. Soon the company operated services to all the major gold-fields in Victoria. It acquired a reputation for reliability, and the government granted it a contract to deliver mail. In 1858, Cobb sold his interests in the company and returned to the United States. The company changed hands several times, but retained its original name. It expanded its services in Australia, and in New Zealand it began operating mail coaches to the gold-fields of Central Otago.

In the early 1860s, railways began to provide alternative transport facilities. In 1862, Cobb and Co. moved its headquarters from Bendigo to Bathurst, in New South Wales, to serve the gold-fields there. In 1865, it extended its services into Queensland, running coach services between Brisbane and Ipswich. As the railways expanded their services, the coaches went farther into the outback to carry passengers to the railheads. By 1890, the company controlled about 6,437 kilometres (4,000 miles) of passenger routes in Queensland alone.

In the early 1900s, the coaches were gradually replaced by other forms of transport. The last Cobb and Co. coach ran between Yuleba and Surat, in Queensland, in 1924. It is now in the Queensland Museum in Brisbane.

COCKATOO ISLAND is the largest island in Sydney Harbour. It is formed of sandstone rock, and extends over an area of about 16 hectares (40 acres). From 1840 to 1872, the island was a prison settlement. Only one man ever escaped. The convicts constructed a dockyard and dug silos in the solid rock.

In 1908, the New South Wales government began shipbuilding on a large scale at Cockatoo Island. The Royal Australian Navy used it as a dockyard from 1913 to 1921. Since 1933, the government has leased the island to a private company.

COCKATOOS are a small group of mainly white or black parrots. They can raise their long crown feathers as crests. The birds live in Australia, Indonesia, and New Guinea. The large *white cockatoos* are common cage birds and good talkers. Cockatoos nest in holes in trees and lay white eggs.

Scientific Classification. Cockatoos belong to the parrot family, *Psittacidae*. White cockatoos are genus *Kakatoe*, species *K. galerita*.

COCKBURN SOUND, a deepwater port, is the largest of three main anchorages within the outer harbour of the Port of Fremantle in Western Australia. Cockburn Sound is administered by the Fremantle Port Authority. It is the main port for the Kwinana industrial complex. It has facilities for handling oil, refined alumina, iron ore, steel, and other cargo in bulk.

In the early 1970s, a causeway was built from the mainland to Garden Island in the sound and wharves were built to serve destroyers and submarines of the Royal Australian Navy operating in the Indian Ocean.

COCOS ISLANDS lie in the Indian Ocean, about 2,768 kilometres (1,720 miles) north-west of Perth, in Western Australia. They consist of about 25 coral islands. North Keeling Island, which is uninhabited, lies to the north of the group. The Cocos Islands have a cable station and a large airport, which can be used in emergencies by commercial aircraft flying between Australia and South Africa. It was a refuelling stop from 1952 to 1967. The islands have 663 people, most of them Malays.

The Land. The whole group of islands has a land area of less than 13 square kilometres (5 square miles), and none of the islands rises more than 6 metres (20 feet) above sea level. The main islands are West Island, South Island, Home Island, and Horsburgh Island. West Island is the largest. Plant life is plentiful, because rainfall is high. April is the wettest month and October usually the driest. Average annual rainfall is 2,032 millimetres (80 inches). The climate is hot and pleasant.

The People of the Cocos Islands were originally brought from Malaya. They live on Home Island, on the Clunies-Ross Estate. Most of the Europeans live and work across the lagoon at the airport on West Island. Other Europeans man the cable station on Direction Island. The Cocos Islanders work for the Clunies-Ross Estate at copra drying or in various trades, such as carpentry, building and repairing boats, general building, and maintenance. The estate exports copra and sells small quantities of fish to the airport. The islanders live in modern houses and receive free education and health services.

Transport and Communications. Cocos has a cable station and is also linked to Perth by radio-teletype. Telegraph routes between Australia and South Africa and south-eastern Asia pass through Cocos. It has a non-commercial local broadcasting station for the entertainment of local residents and for the children's education. The airstrip was built in 1945, and was rebuilt to take jet aircraft in 1952. Occasionally, cruising yachts call at Cocos on their way across the Indian Ocean. No regular shipping services call at Cocos, but occasionally ships bring supplies and others transport copra to Singapore.

History. Captain William Keeling, of the East India Company, discovered the Cocos Islands in 1609. They are sometimes called the *Keeling,* or *Cocos-Keeling, Islands* after him. The islands remained uninhabited until 1826, when Alexander Hare, an Englishman, settled there. In 1827, Captain John Clunies-Ross, a Scottish seaman, also settled there with some Malayans. Hare left Cocos after a few years, and Clunies-Ross alone built up a thriving trade with Singapore in copra and oil. At his invitation, Britain annexed the islands in 1857. In 1886, Queen Victoria granted the land to George Clunies-Ross. In 1903, the islands were incorporated with Singapore. Succeeding heads of the Clunies-Ross family enjoyed semi-official status as resident magistrate and British representative. In 1955, Britain transferred the islands to Australia, and they became an Australian territory.

COFFS HARBOUR (pop. 10,107) is a port and tourist resort on the mid-north coast of New South Wales. Farms in the district produce bananas, tomatoes, and dairy products. Fishing is an important local industry. Light industries include saw-milling, making plywood, and making concrete blocks.

Hotels, motels, and holiday flats offer abundant accommodation for tourists. Scenic attractions include the Kumbaingeri Wildlife Sanctuary and the Bruxner Flora Reserve north of Coffs Harbour, and Dorrigo State Park to the west. Tourists can join organized tours of banana plantations. Other tourist attractions include a pet porpoise pool.

COLAC (pop. 10,418) is a city on the southern shore of Lake Colac in south-western Victoria. For location, see VICTORIA (map) in the other Australasian volume. Colac is the commercial and civic centre of a rich agricultural, dairying, and pastoral district. Farms in the district produce mainly dairy products, potatoes, beef cattle, sheep, pigs, poultry and eggs, linseed, millet, rye grass seed, and hay. Colac is the largest railing centre in Victoria for onions. Secondary industries process dairy products and meat. They also produce agricultural equipment, clothing, and building materials. Tourists can enjoy fishing and other sports on Lake Colac. The site for Colac was reserved in 1849. It became a city in 1960.

COLBEE was a Port Jackson Aborigine who was captured by Governor Arthur Phillip in November, 1789, together with Bennelong, another Aborigine. Phillip hoped to keep them in the British settlement and train them as interpreters and mediators between the settlers and the Aboriginal tribes in the Sydney area. But Colbee escaped shortly afterwards and Bennelong somewhat later. Bennelong later rejoined the settlement, but Colbee remained with his tribe. See BENNELONG in this volume.

COLEMAN, JOHN (1928-1973), an Australian Rules football player, kicked 537 goals in a little over five seasons playing for Essendon, a suburb of Melbourne. He became the only league forward to score 100 goals or more in each of his first two seasons. He scored 100 goals in 1949 and 120 goals in 1950. After he retired, he coached the Essendon team. He was born at Port Fairy, in Victoria.

COLENSO, WILLIAM (1811-1899), was a missionary, scientist, explorer, printer, and politician. He did much to convert the Maoris to Christianity and to develop the Hawkes Bay district of New Zealand. In 1834, he sailed from Britain to New Zealand to become printer to the Anglican mission. Later, he established a mission station near Napier.

COLLIE (pop. 6,802) is a town situated on the banks of the Collie River, 200 kilometres (125 miles) south-east of Perth. It is near Western Australia's only profitable coalfield. A large power station near the open-cut mines supplies electricity to many towns in the south-western part of the state. Arthur Perrin discovered the coalfields in 1883.

COLLIE, ALEXANDER (1793-1835), a naturalist and surgeon, arrived in Western Australia in 1829 on the warship *Sulphur*. The *Sulphur* accompanied the *Parmelia,* which brought the first settlers to the colony. Collie, together with Lieutenant Preston, explored the area south of the Swan river. The two men named the Collie, Preston, and Margaret rivers. Collie served as colonial surgeon from 1832 to 1835. He was born in Aberdeenshire, in Scotland.

COLLIER, MARIE (1927-1971), an Australian singer, became a principal soprano at the Royal Opera House, Covent Garden, in London, in 1956. She was born at Ballarat, in Victoria. The Australian conductor Joseph Post encouraged her as a singer through the National Theatre movement. She made her debut in *Cavalleria Rusticana* in 1952 and appeared in *The Consul* with great success in 1953. She left Australia for Europe in 1954.

COLLIER BAY lies at the mouth of the Charnley and Isdell rivers, on the northern coast of Western Australia. The land around the bay is rocky and barren. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume.

COLLINS, DAVID (1756-1810), was the founder of Hobart and the first lieutenant-governor of Van Diemen's Land (now Tasmania). In 1803, the government sent him to establish a settlement at Port Phillip Bay. Collins found the area unsuitable and moved to Van Diemen's Land, taking command of a settlement at Risdon Cove. In 1804, Collins moved the settlement to Sullivan's Cove, where Hobart now stands. Collins was born at Exeter, in England. He landed with the First Fleet in 1788, and became the first judge-advocate of New South Wales.

COLLINS, TOM. See FURPHY, JOSEPH, in this volume.

COLLINSVILLE (pop. 2,146) is a coal-mining centre in Queensland. It lies 80 kilometres (50 miles) south-west of Bowen. It produces hard coking coal with a fairly high sulphur content. The seams date from the lower Permian period, which makes them about 235 million years old.

COLOMBO PLAN. See INTERNATIONAL CO-OPERATION (The Colombo Plan) in this volume.

COLONIAL LIFE. See PIONEER LIFE in the other Australasian volume.

COLSTER, WILLEM JOOSTEN VAN, a Dutch explorer, charted the west coast of the Gulf of Carpentaria. In 1623, he sailed in the *Arnhem* from Batavia to *Nova Hollandia* (New Holland), now Australia. Together with Jan Carstensz in the *Pera,* he charted the west coast of Cape York Peninsula. The ships separated, and Colster continued southwards. He sailed across the Gulf of Carpentaria to what is now Arnhem Land. He anchored at the Wessel Islands, and then returned to the Dutch East Indies. Historians know little more of Colster—when or where he was born, or where he died.

COMMONWEALTH is the official term for the federal government of Australia (see GOVERNMENT OF AUSTRALIA in this volume). For articles in the Australasian volumes on various federal agencies, see the subjects they deal with. For example, for the Commonwealth Industrial Court, see ARBITRATION AND CONCILIATION in this volume.

COMMONWEALTH DAY is celebrated on May 24, Queen Victoria's birthday, in many Commonwealth countries. In 1966, Australia decided to change the date to the Queen's official birthday in June, which is a public holiday. Commonwealth Day was formerly called Empire Day.

COMMONWEALTH GAMES are sporting competitions held every four years among members of the Commonwealth of Nations. The first British Empire Games were held at Hamilton, in Canada, in 1930. Games were held in London in 1934 and Sydney in 1938. After World War II, games were held at Auckland, in New Zealand, in 1950; at Vancouver, in Canada, in 1954; at Cardiff, in Wales, in 1958; at Perth, in Western Australia, in 1962; at Kingston, in Jamaica, in 1966; and at Edinburgh, in Scotland, in 1970. Christchurch, in New Zealand, was the site of the 1974 games.

COMMONWEALTH-STATE RELATIONS. See GOVERNMENT OF AUSTRALIA (Federal-State Relations) in this volume; PREMIERS' CONFERENCES in the other Australasian volume.

COMMUNIST PARTY. See MALAYAN EMERGENCY and the *Political Parties* articles in the other Australasian volume.

CONDAMINE is a river in south-eastern Queensland. It rises on the eastern slopes of the Great Dividing Range near Warwick and drains the northern part of the Darling Downs. Two major irrigation projects are based on its system. The explorer Allan Cunningham discovered and named the river in 1827.

CONSCRIPTION is compulsory military service. All the Australians who fought overseas during World War I volunteered to serve. The prime minister, William Hughes, wanted to introduce conscription for overseas service. But the Australian voters rejected it, once at a referendum held in 1916, and again in 1917. New Zealand had a compulsory military training scheme from 1901 to 1930. In 1916, Labour party leaders went to prison in protest against conscription.

During World War II, conscription for overseas service again became the subject of controversy. In spite of opposition, the Australian Labor party decided in 1943 to support sending conscripts to the south-western Pacific area. But all the Australians who served outside Australia and its territories in World War II were volunteers. New Zealand sent conscripts overseas during World War II. Australia sent conscripts to Vietnam.

New Zealand had compulsory military training from 1950 to 1959. Australia had it from 1951 to 1957. New Zealand had a selective system from 1961 to 1972. Australia had a ballot system from 1964 to 1972. The Labor government abolished conscription in Australia after it came to office in December, 1972.

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Kangaroos are hunted for meat and skins. Conservationists fear that some species, particularly red kangaroos, may die out if they are not protected from uncontrolled hunting.

CONSERVATION is particularly important to the people of Australia, Indonesia, Malaysia, and New Zealand. Each of these countries has an economy based on primary industries. And, in each country, government and people have responded to the problems of preserving both environment and resources.

In Australia

The conservation movement in Australia has had a number of advantages over movements in other countries. One nation occupies a whole continent with a large area and a small population. Australia is a young nation, not yet highly industrialized. Its people should be able to retain an attractive environment for living and avoid the mistakes made elsewhere.

Problems and Conflicts exist in Australia as well. Sometimes these problems fall somewhere between federal and state jurisdictions. And sometimes the people tend to ignore them in their rush to develop yet more natural resources. The following paragraphs summarize a few of these problems.

Saving Kangaroos, particularly red kangaroos, has become a major project. Long droughts have hurt the kangaroos, but commercial hunting has continued without sufficient controls. The states concerned have tightened their regulations governing the operations of the kangaroo meat and skin industry.

Protecting Waterfowl. Most of Australia's ducks and other waterfowl breed in the extensive swamps and billabongs along the Murray and Darling rivers. The swamps were once replenished regularly by floods. But men have controlled the headwaters of these rivers to reduce the floods and to provide water for irrigation. As a result, the waterfowl have been harmed.

Using the Great Barrier Reef. This natural wonder has high value for tourists, scientists, and fisheries. But the tourists who visit it disturb its ecology by fossicking. Oil drilling in the region has also endangered it.

Managing High Country. Three areas—in southern New South Wales, north-eastern Victoria, and central Tasmania—constitute major sources of water. For this reason, they are vital to Australia's future. Careful planning is needed to preserve adequate wilderness areas while other suitable parts are developed for tourism or for forestry.

Conserving Arid Lands. Australia could one day have its own "creeping Sahara". Grazing by cattle and sheep has already done considerable harm to extremely fragile low-rainfall lands. In addition, other animals that were introduced by man and later went wild, such as goats, donkeys, and camels, have done great damage. Experts in the study of animals and plants in arid lands have warned that certain parts of these areas could degenerate into useless wastelands if destructive grazing is allowed to go on much longer.

The Lake Pedder Hydro-Electricity Project. In 1967 the Tasmanian hydro-electricity authorities drew up a bold plan to harness the waters of the Gordon River in western Tasmania. As part of this scheme, parliament approved a proposal which involved "drowning" Lake Pedder, then part of the South West National Park. The extra storage of water would cause its fine beach to disappear in order to supply the power station on the Gordon River. Later on, both parliament and the public became aware that hydro-electric engineers could have obtained an equal amount of water by building an alternative scheme that would not destroy Lake Pedder. Despite many calls for a pause to review the alternatives, the government refused.

The Little Desert Scheme in Victoria was a proposal put forward by one government department to open sections of marginal, poor soil country to make 24 new, small farms. Conservationists pointed out at the time that many run-down properties already existed in the area and that the farmers would find poor prospects for their products. As a result of the public outcry against clearing more bush so unnecessarily, the project was abandoned and an increased area was set aside for a Little Desert National Park. More important, the Victorian parliament passed the Land Conservation Act, the first act in Australia to ensure a proper method for determining the best use of all remaining Crown Land. The act directs that

at least 5 per cent. of the state be reserved for conservation.

Battling the Mining Industry. Conservationists and their organizations have fought longer and harder against mining than against any other industry. The background to this problem, as conservationists see it, is that mining laws in the various states were written at a time when conservation had a low priority. These laws now seriously interfere with efforts to implement wise land use. Mines acts come first where there is a conflict with other legislation. Spokesmen for the mining industry reply that this should be so because minerals are where you find them, not where conservationists—or miners—might like them. They state that mining itself affects only a small area and that the industry plants new vegetation in mined-over areas.

Regardless of the merits of these arguments, conservationists point out that they spend much of their time opposing plans to mine in nature area reserves. These places, important for science, for their scenic importance, or for their recreation value, include: the Colong Caves area in the Blue Mountains, Bungonia Gorge near Goulburn, the Fitzgerald River Reserve in Western Australia, the proposed Kakadu National Park in Arnhem Land in the Northern Territory, the Cooloola Sandmass in Queensland, and the Myall Lakes in New South Wales.

Conservation Organizations. There are at least 600 government and private organizations in Australia concerned with aspects of the environment and conservation. The number of voluntary bodies continues to increase at the local and regional levels as public awareness of conservation and its importance to the community grows.

The six states and the federal government share control over the land and water in which most natural resources are located. For this reason, responsibility for conservation action rests with both state and federal governments. But because the federal government controls most of the money from taxes, it has an important role to play and the state's conservation efforts depend largely on such finances.

Federal bodies concerned with the environment include the Department of the Interior and the Fisheries Branch of the Department of Primary Industries. The Wildlife Ecology Division and the Plant Industry Division of the C.S.I.R.O. also study environmental problems. National-level advisory councils and standing committees of federal and state ministers and officials cover the fields of fisheries, forestry, fauna, soils and minerals, national parks, and the environment generally.

The federal office of the environment advises the Minister for Arts, Aborigines, and Environment on the environment aspect of his portfolio. It acts also as a secretariat for the Australian Environment Council. This advisory body was created in 1971, and is made up of the various state ministers responsible for pollution control and environmental conservation and the federal ministers for the environment and the interior.

State bodies also deal with conservation. All the states have departments or authorities, or at least sections within departments, that are responsible for looking after resources such as forests, fisheries, soils, mining, national parks, and wildlife. Three states (New South Wales, South Australia, and Tasmania) have single services administering both national parks and wildlife. Two states (South Australia and Western Australia) have separate departments, one of conservation and the other of environmental protection. Each has special responsibilities laid down by parliament for coordinating government activities in conservation and carrying out broad environmental policies. Conservationists regard the establishment of these departments as significant for the future of their movement in Australia.

Non-government bodies with primary interests or aims involving conservation have existed for many years. But many new ones sprang up in the early 1970s.

Conservation councils representing the various societies and leagues are found in all states except Tasmania. Those in New South Wales and Western Australia are called nature conservation councils. In Tasmania there is a state-wide conservation trust with membership open to individuals.

Apart from the co-ordinating councils, there are bodies such as wildlife preservation societies, national parks associations, and natural resources leagues organized state-wide or at a state level. Among the more vigorous and successful are the Wildlife Preservation Society and Littoral Society in Queensland; the National Parks Association and Wildlife Preservation Society of Australia, both in New South Wales; the Field and Game Council and Natural Resources Conservation League of Victoria; the Nature Conservation Society and the Town and Country Planning Association of South Australia; and the Tree Society in Western Australia. The National Trust also takes an interest in conservation, particularly in New South Wales, Victoria, and Western Australia.

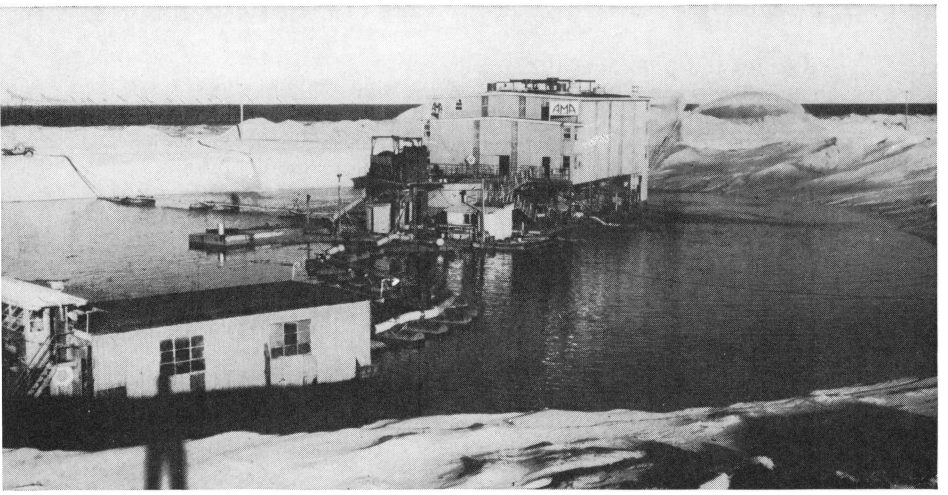
At the regional and local level there are dozens of field naturalists' clubs, conservation societies, foreshore protection groups, and so on.

Parallel with these broadly non-political bodies are various action groups or committees, many of which are made up of a small number of citizens who are also members of other conservation societies. These action committees are usually created to meet some special need or crisis. They work through newspapers and television to mobilize public opinion, thus bringing pressure to bear on politicians.

Examples of these groups in the early 1970s included the national Save The Kangaroo Committee; the Colong Committee, Myall Lakes Committee; and Clutha Committee, all in New South Wales; the Save Lake Pedder Committee in Tasmania and some other states; and the Save Westernport Coalition in Victoria.

All these non-government bodies, with one or two exceptions, lack sufficient funds to have an office or paid staff. Nevertheless, they do a great deal of work with dedicated volunteers.

The Australian Conservation Foundation is in a special category. It is an independent non-govern-



Mining Companies dredging beach sand for minerals such as rutile and zircon for export have encountered opposition from conservationists in several states of Australia.

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ment educational and scientific organization founded in 1965 to promote the understanding and practice of conservation throughout Australia. It is concerned with the total environment, but confines its attention to nationally important matters with an emphasis on trying to find guidelines and solutions for the future. It has over 7,300 members, including about 700 societies and schools as member bodies. It receives a federal grant and has a staff of about 14. It is the only organization actively engaged in conservation work on a day-to-day basis at the national level. Its work includes publications, special projects, and conservation education.

In Indonesia

Problems of Conservation. Tropical rain-forests are of special value to science. In Indonesia, as elsewhere, they have long been threatened by the growing numbers of people and the spread of agriculture. But, in 1966, the Indonesian government opened the forests to timber companies. It granted concessions to overseas companies that endanger more than two-thirds of the calculated productive forest reserves of the country. Such intensive clearing of forests will cause serious problems in soil and water conservation. In addition, about two-thirds of the logs now being exported annually have been cut by small operators who are barely under the control of the forest department. Steadily increasing timber operations have resulted in heavy destruction of forest areas.

The Javan rhinoceros once lived in many parts of south-eastern Asia. There may now be only between 22 and 34 rhino left, on the basis of estimates made a few years ago. They live near the westernmost tip of Java, in the Ujong Kulong Reserve. This reserve is one of the key conservation areas in Indonesia. It is a semi-island and densely vegetated. The International Union for the Conservation of Nature and Natural Resources (IUCN) and the World Wildlife Fund (W.W.F.), highly alarmed at the precarious situation of the species, sent several teams to Ujong Kulong in the late 1960s to assist the Indonesian government in tackling problems of its protection and management. The main problem is to prevent poaching, which threatens the survival of the species. But, with protection, there is a real chance for the species to survive and increase.

Conservation Organizations. The two bodies entrusted with nature conservation are the Directorate of Forestry, with its nature conservation and wildlife management division, and the National Institute for Biological Research. There are 122 forest reserves.

In Malaysia

The expansion necessary in Malaysia to provide food and building materials for the growing population has created serious problems in wildlife conservation. But some important reserves exist, such as the Sepilok Forest Reserve, a sanctuary in the state of Sabah, and conservation measures have been written into many statutes. A developing nation, Malaysia is relatively advanced in its outlook and approach to conservation and land use planning generally.

Problems of Conservation. Many species of animals are threatened when farmers clear land for agriculture, when loggers fell trees in rain-forests for timber, and when engineers build roads into country that was previously inaccessible. For example, land clearance for farming has endangered in particular the Sumatran rhinoceros and the seladang in such areas as the Jengka Triangle. This vast section of Pahang was inhabited by both seladang and elephant, but is now undergoing development. Logging poses a threat to the remaining orang-utans in Sabah. The Sepilok Forest Reserve near Sandakan provides one of the finest protected tracts of lowland rain-forests remaining anywhere on earth. This area is administered by the Forest Department of Sabah. Logging was stopped in the forest in 1954, leaving much virgin forest and a considerable area in regrowth stages. A great deal of research work has led to about 450 species of trees being recorded in the area. Hunting was prohibited in the reserve in 1964, and the remaining orang-utans are protected. Sepilok is one of the last sanctuaries for orang-utans.

The Virgin Jungle Reserve Project of the Malayan Forest Department is a direct response to the increasing development of lowland tropical rain-forest for

agriculture. It aims to preserve sample areas of various types of natural vegetation as a heritage for the future, for scientific study, for wildlife conservation, and for foresters to use for reference purposes in managing their own forest reserves.

Conservation Organizations. The main conservation departments are: the Malaysian Forest Service; the Department of Fisheries; and the Prime Minister's Department. The Malaysian Land Capability Classification has been compiled within the Economic Planning Unit, a branch of the Prime Minister's Department. The classification indicates which areas are best for real estate, which for industrial development, and which for conservation. In addition to the Malaysian Nature Society, there are various groups of bird-watchers in the main centres.

In New Zealand

Problems of Conservation. Until well into the 1960s, most problems of conservation in New Zealand arose in connection with the survival of various species of birds in the face of settlement of the land. Yet the only people who became concerned were scientists and bird-lovers. But, in the 1970s, industrial schemes involving mining and hydro-electricity production began to cause conflicts with conservation.

Two examples will illustrate conservation problems in New Zealand. The *takahe,* a large flightless bird, was thought to be extinct before it was rediscovered in 1948. There are now about 200 pairs. But stoats attack and kill them. Accordingly, New Zealand scientists are trying to discover conditions under which they will breed outside their present area.

The Lake Manapouri hydro-electricity project involved a proposal to raise the level of Lake Manapouri, which lies inside an important national park in the South Island. The New Zealand government found it necessary to build a big hydro-electric power station because a new alumina smelter at Invercargill would require a large amount of electricity. Water for the power station would have to be stored in Lake Manapouri, where it would drown the forested shoreline in the national park. After considerable public protest, a commission appointed by the government in 1970 decided that the lake level should be raised by only 1·5 metres (5 feet).

Conservation Organizations. New Zealand has a number of strong conservation departments and other government bodies. Among them are the New Zealand forest service, fisheries service, and national parks authority, and the wildlife division of the department of internal affairs. There is also a nature conservation council of seven members, set up under the nature conservation act of 1962 to investigate, assess, and report to the government on developments that affect nature conservation. In 1971, as a result of the Lake Manapouri campaign, various non-government bodies decided to form an organization to be known as the New Zealand Conference on Environment and Conservation (CoEnCo) to co-ordinate the voluntary conservation movement and enable it to speak with one voice on major issues.

See also CONSERVATION in the main volumes; EROSION in this volume; POLLUTION and SANCTUARIES in the other Australasian volume.

CONSUMER PROTECTION is of growing importance in Australia and New Zealand. All Australian states and territories have comprehensive consumer laws. Most of the states have advisory councils that make recommendations to governments concerning new consumer protection laws. They also have bureaus that help individual people with everyday complaints and carry out research for the councils.

Consumer laws are continually being strengthened. The bureaus administer a growing number of laws in the fields of selling methods, advertising, consumer credit, and the labelling of clothes and textiles. The bureaus are also interested in consumer standards and consumer education.

The Australian federal government is concerned with consumer standards and restrictive trade practices. In the mid-1970s, the federal government proposed setting up a federal body to test products.

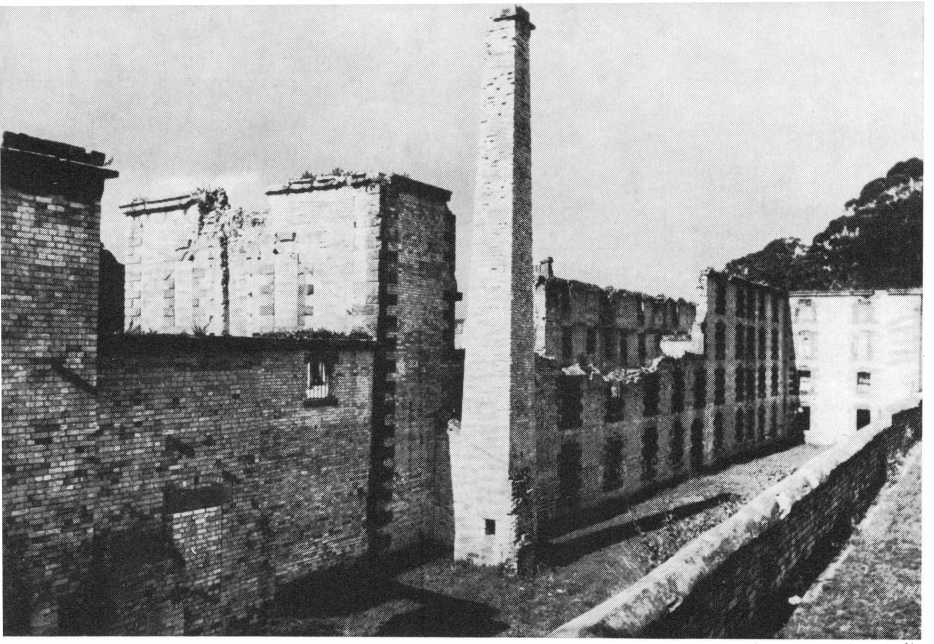
Voluntary groups in all states promote consumers' interests. The Australian Consumers' Association, which publishes a product-testing magazine called *Choice,* is an example.

In New Zealand, the Consumer Council makes policy for the Consumers' Institute. The institute is completely independent, but does receive a grant from the government. Its main activities include product testing and the publication of consumer magazines and books. It conducts research into legislation, finance, trade practices, and welfare matters. It makes representations on behalf of consumers, both to the government and at public inquiries. It operates a complaints advisory service and conducts consumer education in schools.

For many years, there have been laws to protect consumers. But official bodies have been formed mainly since the 1960s. New Zealand set up its consumer council in 1959. Victoria set up an advisory body in 1964. New South Wales established both a bureau and an advisory council in 1969.

See also CONSUMER PROTECTION in the main volumes.

CONTINENTAL SHELF is the part of the ocean floor between the shoreline of a continent and the relatively steep slope called the *continental slope.* The shelf is generally considered to extend to the point where the water reaches 100 fathoms (182 metres or 600 feet). The width of the shelf varies greatly around Australia. The shelf is fairly narrow off the coast of New South Wales. It is from 16 to 322 kilometres (10 to 200 miles) wide off the Queensland coast, following the outer limit of the Great Barrier Reef. It extends for a great distance into the Great Australian Bight. It also extends over the whole of Bass Strait between Victoria and Tasmania, and across Torres Strait between Australia and New Guinea. Since 1953, Australia has claimed sovereign rights over its continental shelf for the exploration and exploitation of natural resources. Companies have discovered oil and natural gas in Bass Strait, off the coast of Western Australia, and in the Gulf of Papua. See also PETROLEUM INDUSTRY in the other Australasian volume.



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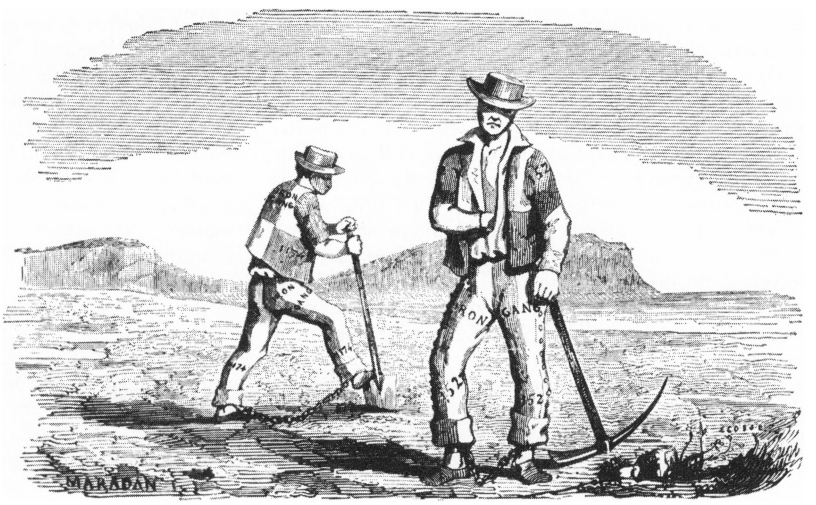
Port Arthur, in Van Diemen's Land (now Tasmania), was founded in 1833 and abandoned as a prison in 1877. It was not the place of horror sometimes pictured.



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Ironed Gangs included convicts who broke the regulations by being drunk, absent without leave, and so on. They worked in chains at such tasks as road-making.

CONVICTS. Transportation of convicts from Britain to its colonies had two advantages as a form of punishment. It got rid of the troublemaker and at the same time employed him in a way that would help further British trade and wealth.

Various forms of banishment and transportation were used till the early 1700s. Then, in 1717, noting the lack of servants in the American colonies, an act of parliament established transportation on a regular basis. Under the provisions of further acts of 1779 and 1784, convicts were ordered transported to Botany Bay, meaning the settlement in Australia.

The Prisoners. During the years from 1787 to 1840, about 68,000 men and 12,500 women were sent to New South Wales. From 1803 to 1853, about 55,000 men and 12,500 women were sent to Van Diemen's Land (now Tasmania). And, from 1850 to 1868, about 10,000 men were transported to Western Australia. About 6,000 other men were later sent to New South Wales, Norfolk Island, Port Phillip, and Moreton Bay. The total number transported to Australia was about 164,000, of whom 25,000 were women.

Almost every criminal offence was represented in the convict registers, but nine out of every ten prisoners were transported for forms of theft, ranging from picking pockets to embezzling large sums of money. The remaining prisoners were sent out to Australia for various forms of assault, forgery, military offences, and so on. At least half of all the prisoners, and probably two-thirds, had been convicted of previous offences.

Two out of every three prisoners were tried in England, about one in three in Ireland, and a few in Scotland or the British colonies. Three out of every four were single, and nearly all were from the labouring classes. Their average age was 26. Two out of three were listed as Protestants and the others as Roman Catholics. About half were sent out for seven years, one in every five for life.

The ships of transportation were almost all chartered by the Admiralty. Generally, conditions on board were not bad. Only a few prisoners died as a result of overcrowding, wilful neglect by ships' masters, or mutiny. There were two major exceptions. In 1790, the Second Fleet lost about 250 prisoners out of the 1,000 it carried. And, in 1798, on board the *Hillsborough,* 100 out of 300 convicts died of typhoid. But, in the whole period of transportation, only about 3,000 convicts died on the way out.

Assignment. From 1788 to 1840, convicts were organized under the assignment system. After they landed, they were placed in barracks at Sydney or Hobart Town and then assigned to work for private colonists. Each free employer became responsible for the cost of feeding, clothing, and housing his convict labourers. Some convicts were assigned to the government service.

A master could take his prisoner before the courts for breaking the many regulations formed under the assignment system. Typical offences were being drunk and disorderly and being absent without leave. If found guilty, the prisoner could be sentenced to spend a short period in jail, to be flogged, or to work in an ironed gang. These gangs consisted of habitual offenders or those convicted of serious crimes in Australia.

Probation. After 1840, the government introduced the probation system, under which convicts were housed in camps and, if they behaved well, gradually given more freedom. Discipline was less severe than under the assignment system. A well-behaved prisoner could win a *ticket of leave.* With this ticket, the man could work for himself, provided he reported regularly to the police and did not infringe the regulations. If such a man continued to conduct himself well, he could be given a *conditional pardon* or a *free pardon.* The condition attached to a conditional pardon was that he not return to England. If he won a free pardon, for conspicuously good behaviour, he became as free as anyone else. Other prisoners remained under penal discipline until they had completed their full sentence of transportation. Men who had been convicts were generally referred to as *emancipists.* Strictly speaking, an emancipist was a prisoner who had been pardoned.

Penal Settlements. Prisoners who committed serious offences or a long series of minor offences were sentenced to places of special punishment known as penal settlements. Discipline at these places could be as severe as the human frame could stand, and their histories represent the dramatic highlights of the transportation system. About one man in every twenty was sentenced to the penal settlements. Taking the grisly nature of some incidents, novelists have generalized the character of the penal settlements to apply to the whole convict system.

The three main penal settlements were Macquarie Harbour, Norfolk Island, and Port Arthur. Macquarie Harbour, a desolate spot on the western coast of Van Diemen's Land, was established in 1822 and abandoned for Port Arthur in 1833. It was the scene of a number of attempted escapes. Some of the men who tried to escape were reduced to eating one another. Port Arthur, with an associated settlement for boys, Point Puer, stood south-east of Hobart. It was not the place of horror sometimes pictured. In fact, by the standards of treatment for prisoners in the early 1800s, it was conducted for some time on advanced lines. Norfolk Island, northeast of Sydney, was established as a place of punishment in 1825 and finally abandoned for that purpose in 1856. During this period, it was the scene of rigorous administrations, such as that of John Price.

History. The assignment system was not truly a system in the early years. It gradually grew up as the colonies developed. George Arthur perfected it as governor of Van Diemen's Land from 1824 to 1836. But the British government came under pressure from reformers at home, and from free settlers in Australia, to end transportation. In 1840, it abolished the assignment system, ended transportation to New South Wales, and introduced the probation system in Van Diemen's Land. The new system failed because of economic depression, a surplus of convicts, and agitation by the Anti-Transportation League. The system was swept away in Van Diemen's Land in 1853 and in Western Australia in 1868.

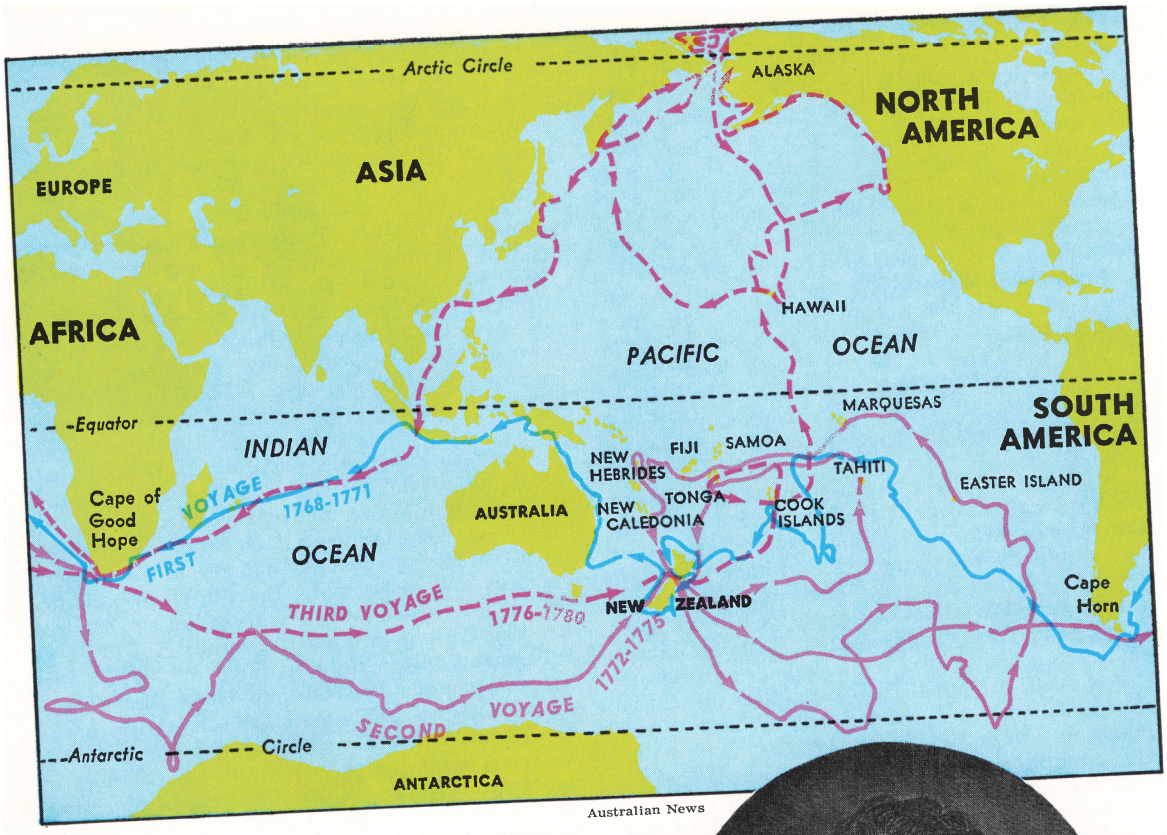
Famous Convicts included Simeon Lord, Samuel Terry, James Underwood, and Henry Kable, who all became wealthy businessmen in the early years of New South Wales. Francis Greenway, the architect, was responsible for various distinctive buildings in and around Sydney. William Redfern became Govenor Macquarie's personal physician. Mary Reibey, transported in 1792, became the owner of ships and of extensive property in New South Wales. Richard Dry, transported from Ireland after the 1798 uprising, became prominent in Van Diemen's Land. Many families in Australia are of convict origin.

Related Articles in the Australasian volumes include:

First Fleet	Norfolk Island
Greenway, Francis Howard	Redfern, William
Lord, Simeon	Reibey (family)
Moreton Bay	Transportation

CONZINC RIOTINTO OF AUSTRALIA LTD. (C.R.A.) is the Australian branch of Conzinc Rio Tinto Ltd. —an amalgamation of an Anglo-American firm, Consolidated Zinc, and the English giant Rio Tinto Ltd. It was incorporated in Melbourne in 1959 as a mining, industrial, and investment company. It holds interests in mining, aluminium, electric power, and oil exploration. C.R.A. supplied capital, plant, and maintenance for large open-cut uranium mines at Rum Jungle in 1944 and Mary Kathleen in 1954. In 1962 it bought a half interest in Hamersley Range iron ore deposits, including Mount Tom Price, and the Dampier railway. It has a zinc refining plant at Cockle Creek in New South Wales, and a copper mine on Bougainville.

COOBER PEDY (pop. 1,391) is an opal-mining settlement in central South Australia. Opals were first discovered there in 1915. Mines are fairly shallow. Few are more than 27 metres (90 feet) deep. Miners have found opal over an area 64 kilometres (40 miles) long and 3.2 kilometres (2 miles) wide. But the full extent of the field is not known. The miners have built their living quarters underground to avoid the extreme temperatures at the surface.



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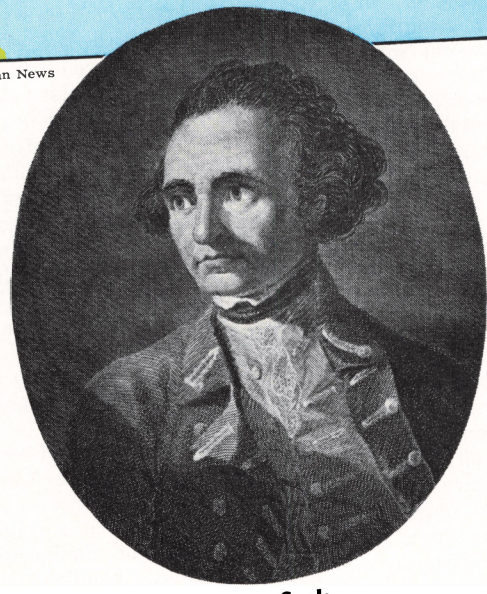


James Cook

COOK, JAMES (1728-1779), was one of the greatest British seamen who ever lived. His three voyages to the Pacific Ocean revolutionized geographical knowledge. Before Cook crossed and recrossed the Pacific Ocean, it was virtually a blank space on the map, apart from a few islands and fancied sightings of land.

Early Life. Cook was born at the village of Marton, in Yorkshire. He was the son of a farm labourer. He was apprenticed to a grocer and haberdasher, but later went to sea. In 1759, he played a leading part in charting the St. Lawrence River so that troops could be carried up it for General Wolfe's assault on Quebec. From 1763 to 1767, he surveyed the coast of Newfoundland. His charts and scientific observations made him favourably known at the Admiralty and the Royal Society.

The First Voyage to the Pacific was made in the ship *Endeavour* to Tahiti, which British and French explorers had visited a short time before. Cook was chosen to command an expedition to Tahiti to observe the transit of Venus in June, 1769 (see VENUS in the main volumes). Cook received his first commission as lieutenant.

The *Endeavour* left Plymouth on Aug. 26, 1768. It sailed round Cape Horn, and reached Tahiti on April 13, 1769, in plenty of time to prepare for the transit of Venus on June 3. But the main work of the expedition was not particularly successful, because the outline of the planet is so poorly defined that no observations anywhere could be relied upon. Calculations based on them to determine the distance between the Earth and the Sun varied enormously. But the voyage of the *Endeavour* was, for other reasons, of great significance scientifically. The naturalists Joseph Banks and Daniel Carl Solander sailed in the *Endeavour*. They became famous for their discoveries of plants and animals. And the study Cook and Banks made of Tahiti and its people, and of the Society Islands nearby, was of great importance in the fields of anthropology and ethnology. They were the first Europeans to spend an extended period among Polynesians.

Cook stayed in Tahiti till July 13. He left Raiatea in the Society Islands on August 9. Then he sailed

south to carry out the more secret part of his instructions. These instructions were to look for a great southern continent. If he did not find it by the time he had reached latitude 40°, he had orders to sail west to investigate New Zealand. The Dutch explorer Abel Janszoon Tasman had sighted only the western coast of New Zealand in 1642. After exploring the whole of its coast, Cook was to return to Britain by whatever route he thought best.

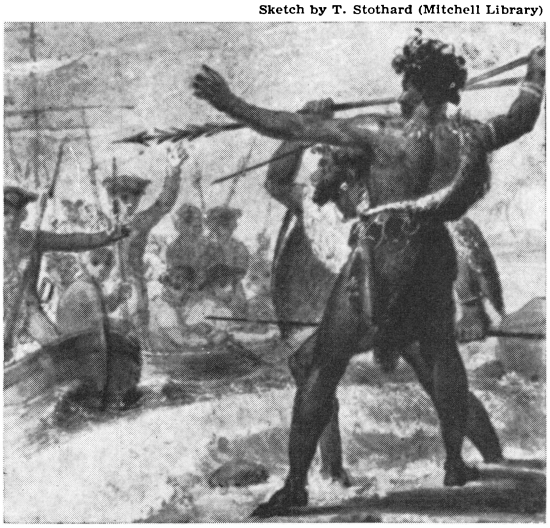
On October 6, Cook sighted the New Zealand coast near Poverty Bay. He sailed right round the country. He charted its whole coast in considerable detail and landed at several places. He wrote a careful description of the country and the Maoris in his journal. He decided to return to Britain by way of the eastern coast of New Holland (now Australia). Europeans had never seen the eastern coast before. He left New Zealand on March 31, 1770, and sighted the coast of what is now Victoria on April 19. He sailed northwards up this new land, making his famous landing at Botany Bay on April 29.

The *Endeavour* struck a reef inside the Great Barrier Reef. Cook spent seven weeks in the Endeavour River repairing the ship and observing the country and the Aborigines. He sailed north to Cape York and passed through Torres Strait on August 21 and 22. He arrived at Batavia (now Jakarta) towards the end of 1770. His men fell ill there while the *Endeavour* was having further repairs. He reached the Cape of Good Hope in March, 1771, and arrived back in Britain on July 12.

The Second Voyage. Cook was promoted to the rank of commander. He now made his own plans for a second and even greater voyage. He wanted to sail around the world with the westerly winds, keeping as close to the South Pole as possible. This voyage would prove or disprove the existence of the southern continent that geographers said existed.

He had two ships, the *Resolution* and the *Adventure*. Tobias Furneaux commanded the *Adventure*. Cook left Britain on July 13, 1772. He called at the Cape of Good Hope. Then he sailed south on the first of three "ice-edge" cruises. He was the first man to cross the Antarctic Circle. He took on fresh supplies at New Zealand, and then at Tahiti and at Tonga. When he returned to New Zealand, the two ships parted company off the coast.

Landing at Botany Bay, Cook found two Aborigines who tried to stop him from coming ashore until he fired his musket.
Sketch by T. Stothard (Mitchell Library)



On the second cruise, Cook reached his farthest point south—latitude 71°10′, longitude 106°54′ W. —on Jan. 30, 1774. He followed this cruise with a great amount of discovery and rediscovery to the north. He visited Easter Island, the Marquesas, Tahiti and the Society Islands, Niue, Tonga, the New Hebrides, New Caledonia, Norfolk Island, and New Zealand. Then he passed on to Tierra del Fuego. From there, he sailed into the South Atlantic. He rediscovered South Georgia and discovered the South Sandwich Islands before making for the Cape of Good Hope. He reached Britain on July 30, 1775.

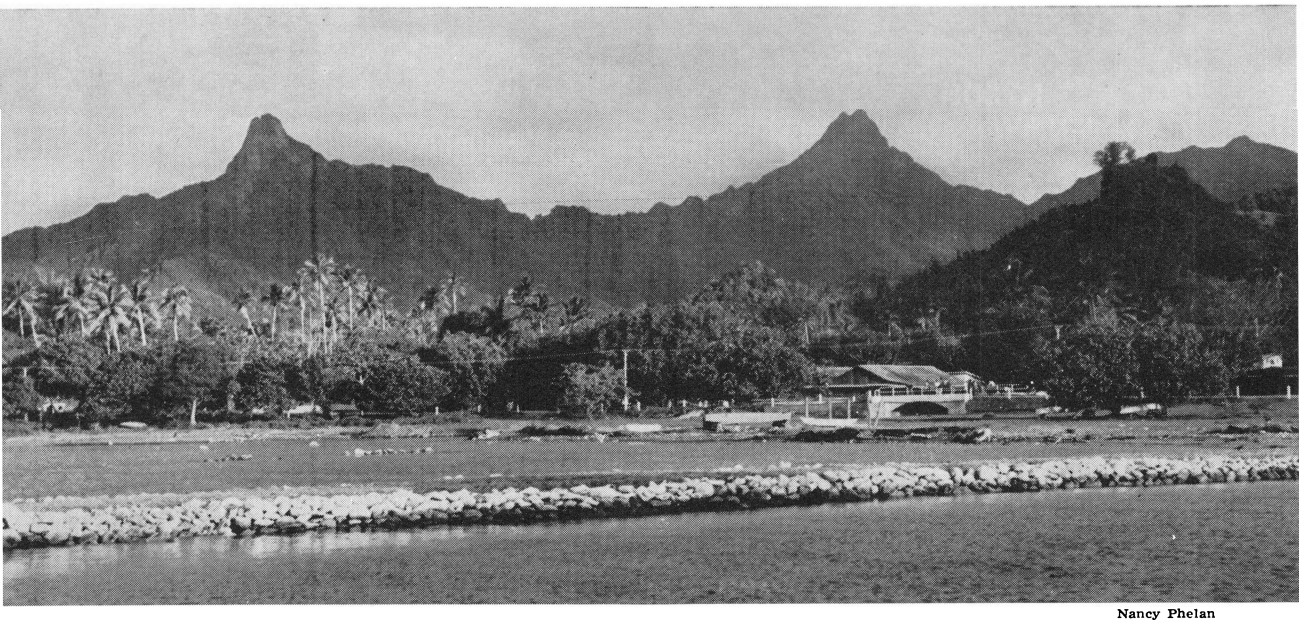
The Third Voyage. Cook was promoted to the rank of captain. He settled down to write the history of his second voyage and contemplated retirement. But another voyage was already being planned, to discover the North-West Passage across America from the Pacific to the Atlantic. He volunteered to command it, and was enthusiastically accepted.

The *Resolution* was now accompanied by the *Discovery,* commanded by Charles Clerke, who had been on both the previous voyages. Cook left Plymouth on July 12, 1776. He went south from the Cape of Good Hope to examine some French discoveries, principally Kerguelen Island. Then he sailed east to Van Diemen's Land (now Tasmania) and New Zealand. Contrary winds in the Pacific delayed him badly and forced him to call for fresh supplies at both Tonga and Tahiti from May to September, 1777. As a result, he did not sight America till March, 1778. On the way, he became the first European to visit the Sandwich Islands (now Hawaii).

Cook sailed up the American coast in much bad weather, through the Aleutian Islands and Bering Strait. He was finally stopped by the Arctic ice in latitude 70°44′ on Aug. 18, 1778. His charts, including part of the Asian shore, were astonishingly good. He returned to Hawaii to spend the winter there. He was killed in a fight with the Hawaiians while trying to recover a stolen boat on Feb. 14, 1779. Clerke tried again for the passage. Again he was forced to retreat. He himself died from tuberculosis. The ships anchored in the Thames on Aug. 4, 1780.

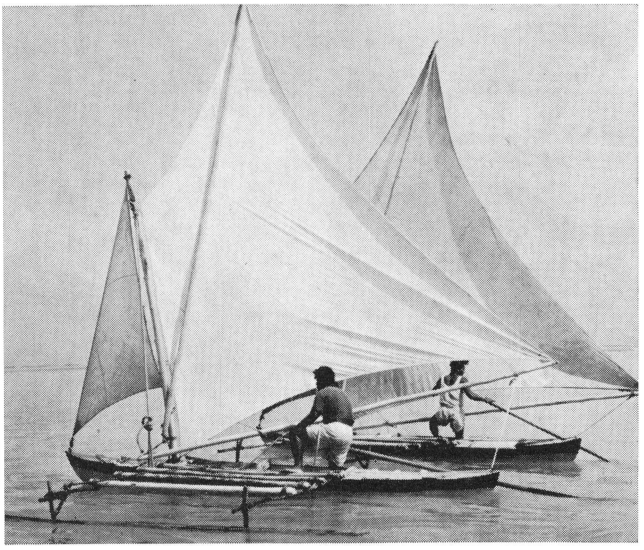
See also Banks, Sir Joseph; Botany Bay; Captain Cook's Cottage; Endeavour; History of Australia; and History of New Zealand in this volume.

COOK, SIR JOSEPH (1860-1947), was prime minister of Australia in 1913 and 1914. He left politics in 1921 and served as Australian high commissioner in London until he retired in 1927. He was born at Silverdale, Staffordshire, in England. He began work in a coal-mine at the age of 9. He migrated to Australia in 1885. In 1891, he was elected to the Legislative Assembly of New South Wales as Labor member for Hartley. In 1901, he entered the federal House of Representatives.



Nancy Phelan

Avarua has a small harbour protected by the coral reef that surrounds Rarotonga. The hills in the interior rise to more than 610 metres (2,000 feet).



The Sailing-Ships of the Cook Islanders are slender, graceful, and fast. The islanders steer them skilfully through the narrow gaps in the reefs.

COOK ISLANDS are a group of 15 islands scattered over an area of more than 2,200,000 square kilometres (almost 850,000 square miles) of the South Pacific Ocean between Samoa and Tahiti. The islands have a total area of 241 square kilometres (93 square miles). Rarotonga, the chief island, is 2,628 kilometres (1,633 miles) north-east of Auckland, in New Zealand. The group has a population of about 21,000. About 10,000 people live on Rarotonga. The next most populated islands are Aitutaki, Mangaia, Atiu, and Manihiki. The only town of any importance is Avarua, on Rarotonga, which is the administrative centre. The Cook Islands are an internally self-governing territory. New Zealand is responsible for their defence and external affairs. The people are New Zealand citizens.

The Land. The Cook Islands form two groups. The nine southern islands, with the exception of Manuae and Aitutaki, are mainly high and of volcanic origin. All the southern islands have fringing reefs. Mangaia, Atiu, Mauke, and Mitiaro have rugged cliffs of upraised coral which are known as *makatea.* The six islands of the northern group are coral atolls. All the Cook Islands are inhabited except Suwarrow and Takutea.

The climate is mild, but humid in summer. The islands experience hurricanes between December and March. The temperature in July and August averages about 16° C (60° F). In January and February the average temperature is about 27° C (80° F).

The Life of the People. The Cook Islanders, who call themselves *Maoris,* are Polynesians closely related to the New Zealand Maoris in tradition, language, and customs. The Cook Islanders speak mainly Maori, but they also learn English in the schools. All the islanders are Christians. Most of them are members of the Cook Islands Christian Church, established by the London Missionary Society.

A number of Cook Islands customs have survived European influence. The islanders still practise the Maori communal system, by which families rather than individuals own land. The people still respect the old chiefly rank of *ariki.* But, under New Zealand influence, the arikis have lost much of their power, although they have an advisory role in government.

Many Cook Islanders have emigrated to New Zealand, and send money to their families. About 400 people from New Zealand and other countries

live in the group. Most of them are government employees on contract. The few permanent settlers are engaged mainly in trade and manufacturing.

The Work of the People. The economy of the Cook Islands is based on agriculture. Most of the Cook Islanders are farmers. They grow citrus fruit, bananas, and coconuts for their own use and for export. Most of the copra exported comes from the northern islands. Small industrial enterprises are also developing. Two factories make clothing for the New Zealand market. Two factories on Rarotonga produce wooden carvings and ornaments made from shells and other local materials for sale in New Zealand. A canning factory on Rarotonga processes citrus, tomato, and pineapple juice, fruit salad, and crushed pineapple.

The main exports are fruit juice, manufactured goods, citrus fruits, copra, tomatoes, pearl shell, bananas, and pineapples. Food is the principal import. New Zealand takes most of the group's exports and provides most of the imports, but the islands also buy from Hong Kong, Japan, Britain, and Australia. They buy far more than they sell. As a result, the Cook Islands have a regular trade deficit. The islands rely on financial grants from New Zealand.

Transport and Communications. In the early 1970s, an airport capable of taking large jet aircraft was constructed on Rarotonga as part of a plan to develop a tourist industry.

The group has no internal air service. But small ships on irregular schedules connect most of the islands. A regular shipping service carries freight and passengers between the Cook Islands and New Zealand. Except at Rarotonga, which has two harbours for small ships, and Penrhyn and Suwarrow, where ships are able to enter the lagoons, all vessels must anchor off the islands.

Rarotonga has the only newspaper—a duplicated sheet that the administration produces daily in both English and Maori. A government radio station broadcasts regularly from Rarotonga.

Health. The Cook Islands health department is based on Rarotonga, where the main hospital and sanatorium are located. There are seven hospitals on other islands. Maori doctors are in charge of small hospitals or dispensaries on the outer islands. All Cook Islanders receive free medical and surgical treatment.

The Cook Islands are fairly free of tropical diseases. Yaws, once widespread, has ceased to be a health hazard. But some islanders still suffer from tuberculosis and filiariasis. On Penrhyn and Aitutaki, some Maoris suffer from leprosy.

Education. The government provides free education for all children between 6 and 16. It also inspects schools run by Christian missions, which receive indirect government aid. The group has primary and post-primary schools, but no technical colleges or universities. The government has established primary schools on every permanently inhabited island, and the Churches run seven primary schools on various islands. The group has four government high schools. Advanced high school students attend Tereora College, on Rarotonga. The government runs this college. Selected students can take advanced and university courses in New Zealand under a government training scheme.

Things to See and Do. Tourist accommodation in the early 1970s was limited to the government hotel and several motels but licences had been granted for the construction of additional accommodation for tourists using the new Rarotonga airport. The only way of seeing the islands, apart from Rarotonga and Aitutaki, is by small ship.

Government. The Cook Islands became a self-governing territory, associated with New Zealand, in 1965. A high commissioner represents both Britain's monarch, who is the head of state, and the New Zealand government.

The premier of the Cook Islands is elected by the Legislative Assembly. He appoints up to six cabinet ministers from the assembly. The premier and his cabinet are responsible for all Cook Islands affairs except defence and external affairs, which the New Zealand government administers in consultation with the Cook Islands government.

The government machinery also includes an Executive Council comprising the cabinet and the high commissioner. The high commissioner or premier may summon the council to consider any cabinet decision.

The Legislative Assembly comprises 22 members with full legislative authority, including the right of passing financial measures. All adult islanders vote on a common roll to elect the assembly members. There are no special or reserved seats. Seats are allocated to the various islands according to their populations.

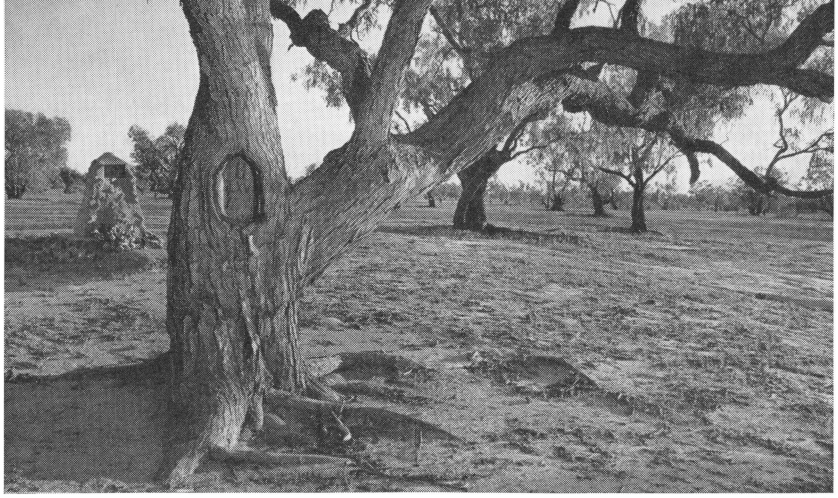
The House of Arikis was established by the House of Arikis Act of 1966. The house, which meets once a year, is a consultative body concerning traditional land usage and Maori customs.

Legal System. The Cook Islands have a High Court and a Land Court. The High Court has functions equivalent to those of both the Supreme Court and the magistrates' courts in New Zealand (see LEGAL SYSTEM OF NEW ZEALAND in this volume). A judge of the High Court hears appeals from the commissioners, and appeals may also be carried to the Supreme Court of New Zealand.

History. The Cook Islands are named after James Cook, who sighted a number of the islands in the southern group on his second and third voyages (see COOK, JAMES, in this volume). Missionaries introduced Christianity in 1821, and for many years the arikis and missionary teachers governed the islands under a code of laws inspired by the missionaries. In the 1800s, whalers and trading vessels made frequent visits to the islands.

The islands were placed under British protection in 1888. The chiefs formally ceded the islands of the southern group to Britain in 1900. In 1901, the whole of the Cook Islands became part of New Zealand. The group obtained internal self-government in 1965, when a new constitution was proclaimed.

See also HENRY, ALBERT, in this volume.



Jeff Carter

Cooper's Creek has a monument to the explorers Burke and Wills near the *dig tree*, on which the other members of their party left a message telling them to dig there for buried food.

COOK STRAIT is the stretch of water that separates the North Island of New Zealand from the South Island. It joins the Pacific Ocean and the Tasman Sea. At its narrowest point, the strait is about 18 kilometres (11 miles) wide. At its deepest point, it is about 1,280 metres (4,200 feet) deep. It is noted for its strong currents. The strait is named after the explorer James Cook.

COOKTOWN (pop. 589) is a coastal town in north-east Queensland, about 193 kilometres (120 miles) north of Cairns. It lies on a harbour on the Endeavour River. In June, 1770, the explorer James Cook beached his ship *Endeavour* at the site where Cooktown now stands. He also named the river. Nearby Mount Cook is named after him. In 1873, gold was discovered at the head of the Palmer River, to the west. But, by 1890, the gold had run out.

COOLANGATTA is a town on the southern coast of Queensland, 110 kilometres (69 miles) south of Brisbane, in the city of Gold Coast. It stands near the mouth of the Tweed River. Coolangatta is one of the most popular holiday resorts in Australia. Stretches of good surfing beaches lie near the town. Tourism, dairying, and growing tropical fruits are the main industries. Cedar-cutters first settled in the area in the 1860s.

COOLGARDIE (pop. 5,561) is a mining town in the eastern gold-fields district of Western Australia, about 563 kilometres (350 miles) east of Perth. The countryside around Coolgardie is arid. In 1892, a prospector, Arthur Bayley, found gold a few kilometres from the present site of Coolgardie and miners flocked to the district.

COOMA (pop. 7,784), is a town in the Monaro tablelands of south-eastern New South Wales, located to the east of the Snowy Mountains. It is a major road and rail junction for access roads to the Snowy Mountains. Cooma is the administrative centre of the Snowy Mountains Hydro-Electric Scheme. A festival of the snows is held annually in October. The site for Cooma was reserved in 1849.

COOMBS, H. C. (1906-), was governor of the Reserve Bank of Australia and chairman of the Reserve Bank Board from 1960 to 1968. He was governor of the Commonwealth Bank of Australia from 1949 to 1960. He was born at Kalamunda, in Western Australia, and named HERBERT COLE COOMBS. He studied at the University of Western Australia and the London School of Economics. Coombs was appointed chairman of the Australian Council for the Arts in 1967. He also became chairman of the Council of Aboriginal Affairs. He was named chancellor of the Australian National University in 1968.

COOPER'S CREEK is the southern part of the Barcoo River, below the junction of the Thompson and Barcoo rivers near Windorah, in south-western Queensland. Cooper's Creek flows south-west from Windorah into South Australia. From there on, it becomes a series of channels and water-holes in the parched salt bed of Lake Eyre. Cooper's Creek flows only after heavy rain in its upper reaches. But, with heavy rains, it floods over a wide area, bringing the "dead heart" of Australia to life for a brief period. Charles Sturt visited Cooper's Creek in 1845 (see STURT, CHARLES, in the other Australasian volume). In 1861, Robert O'Hara Burke and W. J. Wills made their last permanent base on the creek during their tragic expedition.

COOTAMUNDRA (pop. 6,530) is a town in southern New South Wales, on the railway line from Sydney to Melbourne. It is about 420 kilometres (260 miles) south of Sydney.

Cootamundra is important as a market and railway centre. Farmers in the surrounding area raise pigs and dairy and beef cattle, and produce large amounts of wheat, oats, and barley. Meat and smallgoods are also produced. The town is also connected by rail with the Murrumbidgee Irrigation Area and with towns in the Australian Alps. Cootamundra was first settled in 1862.

COPLAND, SIR DOUGLAS (1894-1971), a distinguished economist, was Australian ambassador to China from 1946 to 1949 and high commissioner to Canada from 1953 to 1956. He was the first principal of the Australian Administrative Staff College at Mount Eliza from 1956 to 1959. He was also the first vice-chancellor of the Australian National University in Canberra, from 1949 to 1953. He was born at Timaru, in New Zealand, and educated at Waimate High School and Canterbury College. He was professor of economics at the University of Tasmania from 1920 to 1924 and first professor of commerce at the University of Melbourne from 1925 to 1946. He was economic consultant to the prime minister of Australia from 1941 to 1945, and Commonwealth prices commissioner from 1939 to 1948.

Mt. Morgan, in eastern Queensland, is one of the largest open-cut copper mines in Australia. It has reserves of about 9·6 million tonnes.

Australian News and Information Bureau

COPPER MINING. Copper is Australia's third most important mineral product. It accounts for about 12 per cent. of the country's mineral production. Australia has almost 6 million tonnes of known copper reserves, most of them at Mt. Isa. Australia produces each year more than 200,000 tonnes of copper, valued at about $A 122 million. It ranks ninth among world copper-producing countries.

Copper production in Indonesia began in the early 1970s, when the Ertsberg project became operational. During the early 1970s, no copper was produced in Malaysia or New Zealand. But prospecting for copper was carried out in these countries during this period with a view to the development of copper resources in the future.

Copper Mines. Copper occurs where solutions of salts have built up deposits of primary sulphides. Where these deposits are near the surface or where they have been subjected to a flow of water from the surface, they are oxidized into carbonates, sulphates, silicates, copper oxide, or even metallic copper. During this process, the descending water becomes acidified. The water dissolves some of the copper and deposits it in a deeper zone of *secondary enrichment.*

Mt. Isa in Queensland produces about 120,000 tonnes of copper a year. Mt. Lyell in Tasmania produces 23,000 tonnes a year. The mine at Cobar in New South Wales produces 10,000 tonnes a year. Mt. Morgan in Queensland supplies 10,000 tonnes a year from its mine, and Tennant Creek in the Northern Territory produces 7,500 tonnes a year. Kanimentas mine in South Australia produces 6,000 tonnes of copper a year.

Many of the world's largest copper mines are *open-cut* (surface) mines. But the Mt. Isa is an underground mine worked by a shaft. In the late 1960s, a new shaft was sunk to a depth of 1,140 metres (3,800 feet) to increase the mine's output. Cobar is also worked by a shaft mine. During the early 1970s, Mt. Lyell changed its method of operation from open-cut to underground.

Mt. Isa has more than 140 million tonnes of ore, mostly primary, with an average copper content of 3·0 per cent. Mt. Lyell has reserves of about 42 million tonnes of ore (1·4 per cent. copper), and Mt. Morgan 5·0 million tonnes (0·5 per cent. copper).

Copper Refineries. Sulphide ores go through three main stages—flotation, smelting, and refining. Some oxide ores are leached with sulphuric acid and precipitated onto scrap iron. Both forms are refined by electrolysis. See COPPER (Obtaining Copper from the Ore) in the main volumes.

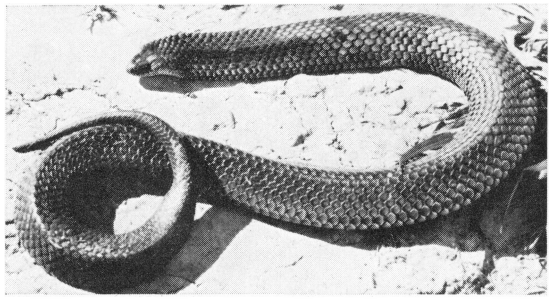
Mt. Isa and Mt. Morgan smelt their mines' copper, producing blister copper. Mt. Isa operates a refinery at Townsville. A large smelting and refining plant at Port Kembla, in New South Wales, also treats a large amount of scrap.

Using Copper. Australia uses copper mainly for making wire and cables, tubing, and sheets for roofing and plumbing. Australia exports about 75,000 tonnes of copper, valued at more than $A 70 million each year.

Of the total income earned from export of Australian copper products, about 82 per cent. was derived from shipments to Britain, France, Germany, and Japan.

History. In 1842, copper was discovered at Kapunda, in South Australia, and mining operations soon began there. Mining in New South Wales started in 1847, and new mines were opened up as late as 1882. The first important discovery of copper in Queensland was made in 1862. But mining of copper at Mt. Isa did not begin until the early 1940s. The Mt. Lyell deposits in Tasmania were discovered in 1886. Production in South Australia and New South Wales declined during the first half of the 1900s. The last mine, at Captain's Flat in New South Wales, closed in 1960. But the mine at Cobar, closed in 1952, was later reopened. Mt. Isa, the last field to be developed, has become Australia's greatest producer of copper.

See also COPPER in the main volumes; MOUNT ISA in the other Australasian volume.



Eric Worrell

A Copperhead Snake

COPPERHEAD SNAKES are dangerous snakes that live in the highlands and colder parts of Tasmania and south-eastern Australia. Most copperhead snakes are rich brown to reddish or black above, and cream to pink below. They are not normally aggressive, but their venom is extremely potent. The snakes are often active at night, even during cold weather. They eat frogs, and other reptiles.

Scientific Classification. Copperhead snakes belong to the family *Elapidae*. They are genus *Austrelaps*, species *A. superba*.

CORIO BAY is part of the western arm of Port Phillip Bay in Victoria. The port of Geelong, on Corio Bay, is one of the main bulk-handling ports in Australia. Its cargoes include petroleum products, farm products, chemicals, and minerals.

COROMANDEL PENINSULA is a hilly headland extending northwards from the main part of the North Island of New Zealand. It forms the eastern coastline of the Hauraki Gulf, separating it and the Firth of Thames from the Bay of Plenty.

CORRESPONDENCE SCHOOLS in Australia and New Zealand provide education for children who cannot normally attend schools because of distance or disability. They also teach Australian children overseas for whom no school is available. Education by correspondence began in Victoria in 1910, in Queensland in 1913, and in New Zealand in 1922.

In both Australia and New Zealand, correspondence education covers the full primary and secondary school courses. Assignments are mailed to pupils. Leaflets and radio broadcasts supplement lessons. In Western Australia, travelling teachers visit pupils in the north-western and Kimberley areas. In South Australia, teachers visit sick children in the Adelaide area. In New South Wales, schools make contact with correspondence pupils in their area to arrange sports days. In New Zealand, the correspondence school employs six teachers to visit pupils in their homes. Pupils meet occasionally in central areas to study or to visit places of interest.

Correspondence education is also important beyond secondary level. The University of New England at Armidale in New South Wales and the University of Manawatu in New Zealand offer a wide range of subjects by mail. Many other institutions offer technical courses through correspondence.

CORROBOREE. See ABORIGINES in this volume.

CORSO. See VOLUNTARY SERVICES (Service Overseas) in the other Australasian volume.

COTTON INDUSTRY is of increasing importance in Australia. In Indonesia, Malaysia, and New Zealand, cotton is not grown or is of little commercial significance. Australia has almost 34,300 hectares (85,000 acres) under cotton. This area provides about 85 per cent. of Australian requirements, and the rest is imported. Total Australian production amounts to about 91 million kilograms (200 million pounds) of harvested seed cotton a year. After ginning, this crop yields about 32 million kilograms (70 million pounds) of cotton fibre, worth about $A 20 million.

Most of Australia's cotton is grown in irrigated areas. New South Wales has by far the largest area under cotton. It grows almost 24,300 hectares (60,000 acres), mainly in the Namoi and Macquarie valleys and the Murrumbidgee Irrigation Area. Queensland grows more than 6,000 hectares (15,000 acres), mainly in the Dawson-Callide region, as well as on the Darling Downs and in the Burdekin Basin. In Western Australia, more than 4,000 hectares (10,000 acres) are under cotton in the Ord River district.

Growing. Cotton grows best in a semitropical climate with a six- to seven-month period free of frost and with sustained warm temperatures while it is growing. It is not an easy plant to grow well. It requires heavy quantities of fertilizer and must be sprayed for insect pests. Cotton seed is usually sown in October or November.

Harvesting takes place five to seven months after planting, when the brown cotton boll splits open and exposes the white cotton. Mechanical picking machines pull the bolls from the plant.

Processing and Marketing. The harvested cotton is taken to ginneries where the fibres are separated from the seeds. Fibres too short to be spun into yarn are used to make felt. The seeds are crushed for cotton-seed oil.

In Queensland, farmers deliver cotton to the Queensland Cotton Marketing Board, which operates the ginneries, processes the by-products, and sells the raw cotton. The board sells mainly to Australian spinners, but it also sells overseas if supplies exceed local requirements. In New South Wales and Western Australia, co-operative ginneries owned by the farmers do the processing and marketing.

History. Cotton has been grown commercially in Australia for more than 100 years. The American Civil War (1861-1865) resulted in temporary high prices for cotton on world markets. A thriving cotton industry developed in Queensland, which had the most satisfactory climate for cotton in Australia. But when prices fell, the area under cotton declined rapidly. The industry as it exists today began to take shape in the early 1960s. Major factors influencing this development were the establishment of a federal government bounty on cotton produced; the changeover from growing under dry-land conditions to growing under irrigation; and the emergence of specialized cotton farmers growing on a large scale, using modern production techniques, and with heavy capital investment in plant and machinery.

See also COTTON in the main volumes.

COUNTRY WOMEN'S ASSOCIATIONS support projects that will benefit people living in rural areas. These include fostering an interest in home-making and handicrafts, maintaining rest rooms and baby health centres in country towns, and providing holiday homes where country families can find relief from the heat of the inland. Members provide voluntary services in their local areas. The first association was founded in New South Wales in 1922.

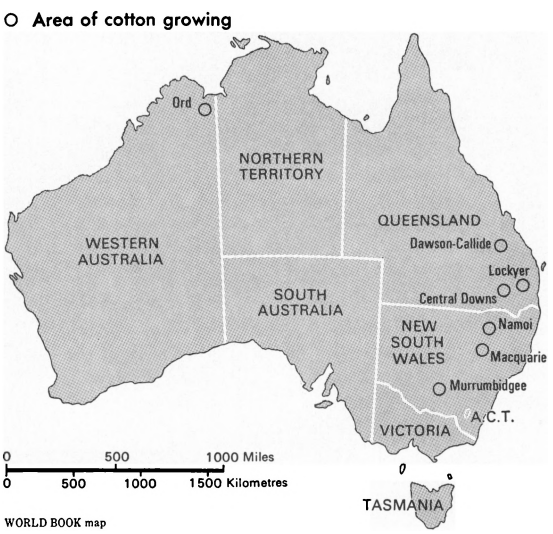
COURT, SIR CHARLES (1911-), leader of the West Australian Liberal Party, became premier of Western Australia in 1974. As minister for industrial development and the north-west from 1959 to 1971, he negotiated the Hamersley and Mount Newman iron ore projects and other contracts worth more than $A 1,000 million. CHARLES WALTER MICHAEL COURT was born at Crawley in Sussex in England and educated in Perth.

COURT, MARGARET (1942-), was the first Australian woman tennis player to win a Wimbledon singles title. She won the Wimbledon title in 1963, 1965, and 1970. She was born at Albury, in New South Wales, and was named MARGARET SMITH. The Australian tennis champion Frank Sedgman coached her in Melbourne.

COWPASTURES was the name given, in the early days of the settlement of New South Wales, to an area of land around Camden, south of Sydney. Most of the herd of cattle which came to Sydney with the First Fleet in 1788 disappeared into the bush. Their rediscovery as a wild herd of over 60 head in 1795 apparently originated the name.

WHERE COTTON GROWS IN AUSTRALIA

This map shows the location of Australia's major cotton-producing areas. The most important of these are the Namoi and Macquarie valleys in New South Wales, followed by the Ord River area in Western Australia. Cotton is also grown in the Dawson-Callide valleys, the Lockyer Valley, and the Central Downs areas of Queensland, and in the Murrumbidgee Irrigation Area of New South Wales. Almost all cotton in Australia is grown on irrigated land.



WORLD BOOK map

COX, JOHN EDWARD (1791-1837), established the first coaching service between Hobart and Launceston, in 1832. The first journey took three days, and he carried only one passenger. Improved roads led to increased services, and Cox won a government contract for carrying mail. He owned hotels in Hobart, Oatlands, and Launceston. Cox was born in England and settled in Van Diemen's Land in 1821.

COX, WILLIAM (1764-1837), was a pioneer settler in Australia. In 1814, he built the first road across the Blue Mountains. He completed the road in less than six months. It ran for 163 kilometres (101 miles) from the Nepean River to the Macquarie. Cox was born at Winborne Minster, in England. He entered the army in 1797, and went to Australia.

CRADLE MOUNTAIN rises to 1,545 metres (5,069 feet), 64 kilometres (40 miles) south-west of Devonport in the Lake St. Clair National Park in Tasmania. It got its name because it looks like a miner's *cradle* (a rocking box used for washing gold).

CRAPP, LORRAINE (1938-), an Australian swimmer, broke the women's 5-minute mark for 440 yards free-style in 1956. She competed in the Olympics that year and again in 1960. She was born at Bathurst, in New South Wales.

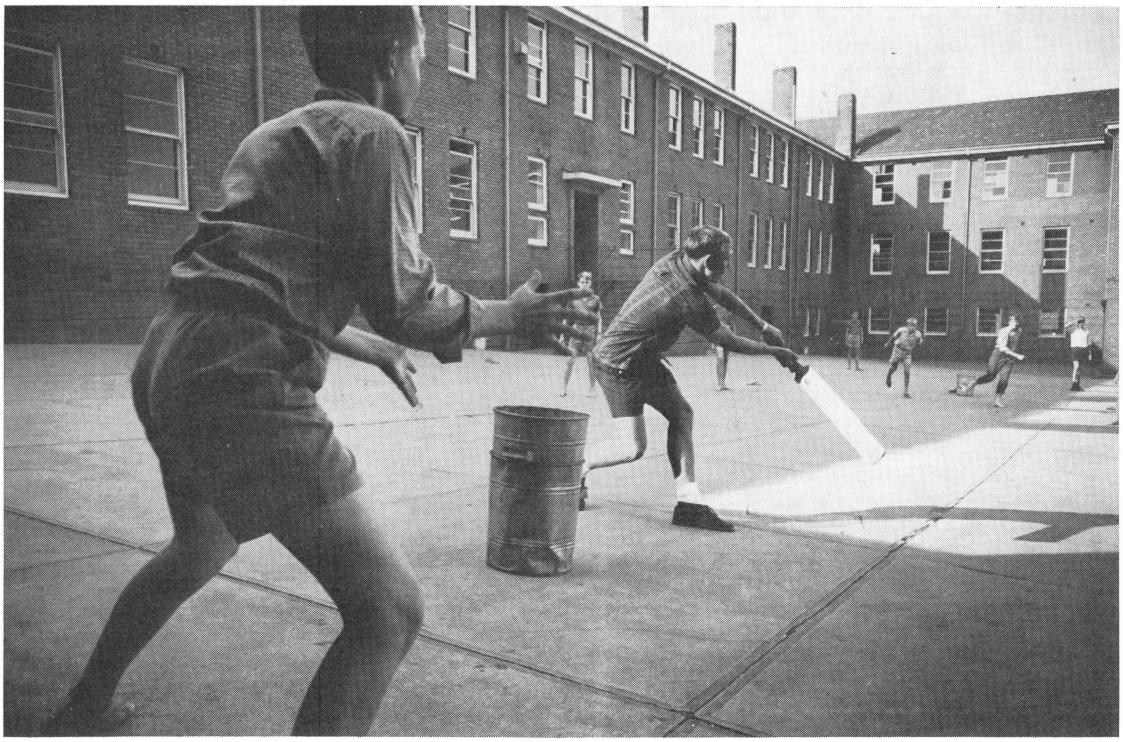
CRAWFORD, JACK (1908-), an Australian tennis player, was the winner of the men's singles title in 1933. He played in the Davis Cup for Australia in 1928 and from 1932 to 1937. He was born at Albury in New South Wales.

CRAWFORD, SIR JOHN (1910-), an Australian economist, was vice chancellor of the Australian National University from 1968 to 1973. He was director of the Research School of Pacific Studies at the Australian National University from 1960 to 1967. He served under Sir James Vernon on a federal committee of economic inquiry from 1962 to 1964. He was a member of the World Bank economic mission to India in 1964 and 1965.

Sir John Crawford

He was born at Hurstville, Sydney, and educated at Sydney Boys' High School and the University of Sydney. During World War II, he was director of research at the Ministry of Post-War Reconstruction. From 1945 to 1950, he was director of the federal Bureau of Agricultural Economics. He was secretary of the Department of Commerce and Agriculture from 1950 to 1956, and secretary of the Department of Trade from 1956 to 1960.

CRAYFISHING INDUSTRY is Australia's most valuable fishing industry. The total catch each season is valued at more than $A 26 million. Several species are of commercial importance and all are caught by setting *pots* (baited traps) on the sea bottom. Western Australia has the largest fishery, followed by South Australia and Tasmania.



David Moore

Schoolboy Cricket fosters many good cricketers, regardless of the space and equipment the players have available.

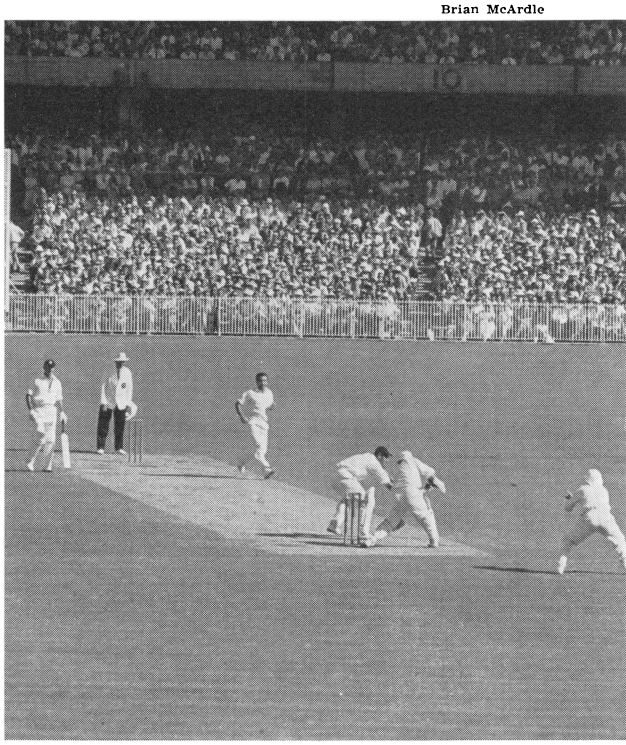
CRICKET has been popular in Australia, Malaysia, and New Zealand for almost 100 years. During this period, Australia has emerged as one of the greatest cricketing nations in the world. Australian teams have won the majority of their matches against England, the founder of cricket. Sportsmen consider this a remarkable feat, because England has almost five times more cricketers than Australia. Australian batsmen, bowlers, and fielders have a reputation for daring cricket throughout the world. Their test matches against England are always full of tension, and those against the West Indies always exciting. In February, 1960, a world record crowd of nearly 91,000 people watched the Saturday's play in the final test between Australia and the West Indies at the Melbourne Cricket Ground. Australia won the test and the series.

Australian cricketers have won so many international matches that overseas enthusiasts often imagine that they have a secret formula for winning. They speak of cricket as an Australian religion, and of Australian babies as holding cricket bats instead of rattles in their prams. Some say that the dark green Australian cap is enough in itself to frighten opponents into error. But cricket in Australia has to fight a constant struggle for public support. Surfing and other water sports attract many youngsters who would probably otherwise play the game. Yet, when Australia plays England, India, New Zealand, Pakistan, South Africa, or the West Indies, cricket draws many people away from the beaches. Cricket has a habit of attracting enormous crowds just when its critics claim that the game is finished.

The game appeals to a wide variety of enthusiasts

Test Matches are sporting highlights. Enthusiasts flock to the major cricket grounds to see these exciting games.

Brian McArdle



—from little boys who use kerosene tins for wickets to portly gentlemen in their fifties and sixties. They turn out in a strange assortment of teams, such as civil service departments, orphanages, and returned servicemen's clubs, or any country town that can muster 11 men. The game also attracts many women. Australian women play international cricket against such countries as England and New Zealand.

New Zealand has not matched Australia's record in cricket, but it has produced many fine players. New Zealanders, like Australians, are once-a-week cricketers. Cricket grounds in New Zealand are smaller than in Australia. Wickets are usually softer because the country experiences a higher rainfall. Many experts consider that the playing conditions in New Zealand are similar to those in England.

Malaysian cricketers usually play only in local cricket competitions against other local clubs. They seldom go outside their own district.

Local Rules

Australian, Malaysian, and New Zealand cricketers play cricket according to the laws laid down by the Marylebone Cricket Club (M.C.C.) of Britain, founded in 1788. But Australian practice differs from M.C.C. practice in two respects: covering pitches when rain interrupts play, and the length of overs. The international laws of cricket provide that local cricketing authorities may decide when to cover pitches. In Britain, groundsmen do not cover the pitch completely when rain interrupts play. In Australia, groundsmen cover the whole pitch. Australian authorities consider that rain should not be allowed to ruin a match for spectators. British authorities consider that cricket on wet pitches adds excitement to a match. This difference of opinion means that Australian batsmen get little chance to bat on wet wickets at home and are often vulnerable on wet pitches when they go to England.

According to the laws of the game, overs may be of six balls or eight. Both Australia and New Zealand favour eight-ball overs because they consider there is less time wasted in changing ends.

Clubs and Competitions

Cricketing authorities in Australia and New Zealand provide every player of exceptional skill with a chance to earn selection in a national team. In Australia, the road to selection for test cricket leads from school cricket to junior cricket and on to grade or district cricket. From his entry into grade cricket, a player has a chance to be selected for an international match. In advancing from junior to grade cricket, the aspiring player leaves matting pitches and goes on to grass strips. By then his batting technique or bowling action is solidly formed. Cricketing authorities are on the alert for new players.

School Cricket. Throughout Australia and New Zealand, officials are aware that the future of cricket lies in the schools. In 1950, about 600 schools entered teams in school competitions in the Sydney metropolitan area alone. By 1965, about 1,450 schools were playing in these competitions in the same area. Junior cricket is also increasing. About 22,000 young cricketers play in 1,400 clubs in the Victorian Junior Cricket Union, and over 30,000 in a similar union in Sydney. They play for trophies or premierships in atmospheres of intense competition. Less social cricket is played than in England.

The game is difficult to foster in schools and junior competitions, because of the cost of equipment and the lure of Australia's beaches and swimming-pools. One schoolmaster can take 200 or more boys for an afternoon at the pool or beach, but he can supervise only 22 boys in a cricket match. Grass pitches are too

AUSTRALIA v. ENGLAND TEST MATCH RECORD

Year	Winners	Australia Won	England Won	Drawn	Year	Winners	Australia Won	England Won	Drawn
1876-1877	Drawn	1	1		1912	England		1	2
1878-1879	Australia	1			1920-1921	Australia	5		
1880	England		1		1921	Australia	3		2
1881-1882	Australia	2		2	1924-1925	Australia	4	1	
1882	Australia	1			1926	England		1	4
1882-1883	Drawn	2	2		1928-1929	England	1	4	
1884	England		1	2	1930	Australia	2	1	2
1884-1885	England	2	3		1932-1933	England	1	4	
1886	England		3		1934	Australia	2	1	2
1886-1887	England		2		1936-1937	Australia	3	2	
1887-1888	England		1		1938	Drawn	1	1	2
1888	England	1	2		1946-1947	Australia	3		2
1890	England		2		1948	Australia	4		1
1891-1892	Australia	2	1		1950-1951	Australia	4	1	
1893	England		1	2	1953	England		1	4
1894-1895	England	2	3		1954-1955	England	1	3	1
1896	England	1	2		1956	England	1	2	2
1897-1898	Australia	4	1		1958-1959	Australia	4		1
1899	Australia	1		4	1961	Australia	2	1	2
1901-1902	Australia	4	1		1962-1963	Drawn	1	1	3
1902	Australia	2	1	2	1964	Australia	1		4
1903-1904	England	2	3		1965-1966	Drawn	1	1	3
1905	England		2	3	1968	Drawn	1	1	3
1907-1908	Australia	4	1		1970-1971	England		2	4
1909	Australia	2	1	2	1972	Drawn	2	2	1
1911-1912	England	1	4						

costly for many schools. Most of them provide concrete pitches covered with coconut matting. Schools must pay almost $A 160 to buy the basic essentials of bats, balls, pads, gloves, and a matting wicket. But many experts believe that matting is beneficial in teaching young cricketers correct cricket. Balls bounce evenly from the mat, and youngsters can learn to play shots without worrying about balls that kick high or skid low, as they often do on grass. Many people consider that the use of matting is a major reason for Australia's success in producing first-class batsmen.

Most private high schools in Australia and New Zealand have their own ovals, but many government-run schools must use parks or paddocks. Most of the players who develop into test cricketers come to the fore when they advance from primary to secondary school teams. Australian test players Keith Miller, Jack Wilson, and Doug Ring attended Melbourne High School at the same time and were taught by Bill Woodfull, Australian captain in the 1930s. In New South Wales, two other Australian players, Richie Benaud and Alan Davidson, captained rival high school sides.

Every year, the Australian State Schools Association conducts a schoolboys' cricket carnival. Each state fields a team chosen after trial matches among players drawn from hundreds of teams. To play in the 1962 carnival in Perth, the New South Wales schoolboy team travelled across the continent to Perth. Adelaide schoolboys made the shortest journey to the city—only half way across.

Club Cricket

Grade or district teams take part in the cricket competitions of each Australian capital city and the main centres of New Zealand. In most areas, players have to be resident in a district to play for its grade team. But in Melbourne, players may play for whichever team they prefer.

The district clubs usually field four teams. At the start of each summer, most clubs have many players to choose from. In Sydney and Melbourne, clubs often have to reject more than a hundred players when they select their teams. The rejected players usually return to junior, church, or business cricket teams. The district club secretaries continually watch all junior competitions for players who suddenly begin taking a lot of wickets or scoring regular centuries. Good performances in the lower-grade teams usually earn players selection for appearance in the grade above. If players perform outstandingly in first-grade matches, they may gain selection in the state colts team or in the state senior side.

In New Zealand, players also progress through school and church or junior competitions to district competitions. If outstanding, they can then represent their provincial areas. New Zealand cricketers do not play on matting as much as Australian players.

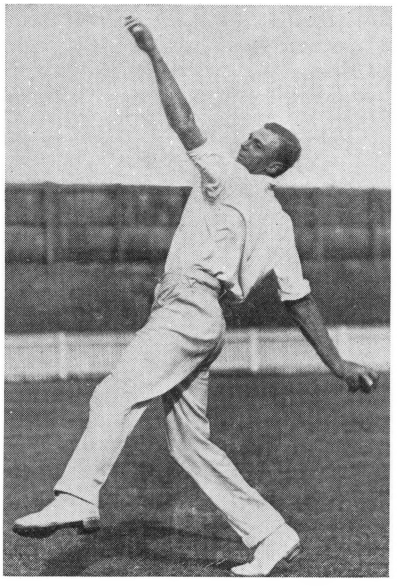
Shield Cricket

The final step before test selection is a place in a team to play for the Sheffield Shield, in Australia, or the Plunket Shield, in New Zealand. But many cricketers who play in these representative teams fail to win test selection. One Australian, H. L. Ironmonger, finally represented Australia in a test match at the age of 42. Competition for places in the state team varies greatly. In New South Wales, the standard is so high that seven or eight test cricketers may play in the state team. By moving to another state, a good player might gain a place in a state team or even test selection.

All the Australian states, except Tasmania and the Northern Territory, play for the Sheffield Shield. The Plunket Shield competition is the New Zealand equivalent of the English county championship. Representative teams from Auckland, Canterbury, Cen-

Australia is known for its fine cricketers, such as Sir Donald Bradman, *below*, Jack Gregory, *right*, and Victor Trumper, *far right*.

Sydney Morning Herald



The Mitchell Library

tral Districts, Northern Districts, Otago, and Wellington compete for the shield. The Hawke Cup, given by Lord Hawke, goes to the New Zealand Minor Cricket Association champions each year.

International Cricket

Australia and England play for The Ashes Cup every two years. The Ashes Cup, or *The Ashes,* is an urn that is kept permanently at Lord's Cricket Ground, in London. Australian teams also play representative sides from India, Pakistan, South Africa, and the West Indies. The West Indies defeated Australia for the Sir Frank Worrell Trophy in a series in 1965, and became the cricket champions of the world. New Zealand teams tour England every few years. Teams from overseas countries usually play two or three test matches in New Zealand after they have completed tours of Australia.

Australian summers rarely pass without a visit from an overseas cricket team. These teams may be seen in action on Australia's major cricket grounds. They are the Woolloongabba Ground in Brisbane, the Sydney Cricket Ground, the West Australian Cricket Association Ground in Perth, the Melbourne Cricket Ground, and the Adelaide Oval. The major grounds in New Zealand are Eden Park in Auckland, Lancaster Park in Christchurch, Carisbrook Ground in Dunedin, and the Basin Reserve in Wellington.

History

During the 1800s, cricket in Australia developed mainly with encouragement from leading players from Britain. William Caffyn, called *Terrible Billy,* coached and played for New South Wales. Visits from teams led by W. G. Grace and other noted English players also offered high standards of competition. Conditions were so bad when Grace played in Australia in 1872 that "a bushel of pebbles had to be removed from the pitch before play began" in some places. But even then there was plenty of aggression in Australian cricket—South Australian fast bowler Ernie Jones bowled a ball through Grace's beard.

In 1868, an Aboriginal cricket team toured Britain. Australia first met England in 1877 at Melbourne. Australia won the match. In this match, Charlie Bannerman scored the first test century against England. Fred Spofforth was the leading Australian bowler of these early matches. Many people consider that Spofforth was cricket's first "demon" bowler. In 1882, Australia defeated the M.C.C. at the Oval cricket ground, in London. On the following day, *The Sporting Times* newspaper published a mock obituary to English cricket that ended with "the body will be cremated and the ashes sent to Australia." A few months later, Ivo Bligh, the M.C.C. team manager, referred frequently to "the ashes" while the team was touring around Australia. The idea caught on. After Bligh's team had beaten Australia in the series, some Melbourne women gave Bligh an urn that contained the ashes of a burnt cricket stump. After his death, his wife gave it to the M.C.C. It became known as *The Ashes.*

During the summer of 1891 and 1892, Lord Sheffield led an English team on a tour of Australia. He gave 150 guineas to Australian cricket. Australian

officials bought a shield with the money and named it after him. In 1892, New South Wales, Victoria, and South Australia began the Sheffield Shield competition. Queensland joined the interstate competition in 1926. Western Australia entered in 1947, and won the shield in its first season of competition.

In 1906, Lord Plunket, then governor-general of New Zealand, presented the Plunket Shield to New Zealand cricketing authorities. They awarded the trophy to Canterbury for the first few years. Other provincial teams had to compete for the shield on a challenge-match basis. On this basis, Canterbury held the shield seven times and Auckland held it five times. In 1921, the competition began as it is today—each team plays all its rivals home and away.

Related Articles in the Australasian Volumes of WORLD BOOK include:

Barnes, Sid	Hassett, Lindsay	Ponsford, Bill
Benaud, Richie	Johnson, Ian	Reid, John
Bradman, Sir Donald	Johnston, Bill	Simpson, Bobby
Davidson, Alan	Lindwall, Ray	Spofforth, Fred
Fingleton, Jack	McCabe, Stanley	Sutcliffe, Bert
Gregory (family)	Miller, Keith	Tallon, Don
Grimmett, Clarrie	Oldfield, Bert	Trumper, Victor Thomas
Grout, Wally	O'Neill, Norman	Woodfull, Bill
Harvey, Neil	O'Reilly, Bill	

CROCKER RANGE is a mountain range in Sabah. It lies parallel to the coast and extends for about 72 kilometres (45 miles) from the border with Sarawak. Some of the mountains in the range rise to more than 1,524 metres (5,000 feet). For location, see MALAYSIA (colour maps) in the other Australasian volume.

CROCODILES. See REPTILES (Crocodilians) in the other Australasian volume.

CROP DUSTING. See AGRICULTURAL AVIATION (Aerial Top-Dressing) in this volume.

CROSS, IAN. See LITERATURE OF NEW ZEALAND (Novels) in this volume.

CROWN OF THORNS is a multi-armed starfish that eats the flesh of coral. During the 1960s, swarms of these starfish attacked many of the coral reefs in the Pacific Ocean. By 1970, about 5,180 square kilometres (2,000 square miles) of the Great Barrier Reef were infested with starfish, and on many reefs more than 90 per cent. of the hard corals had been killed.

Crown of Thorn starfish invaded coral reefs in the western Pacific in the 1960s, eating the flesh of the coral. By 1970, the starfish infested much of the Great Barrier Reef.

Photographic Library of Australia

Collecting the starfish from infested reefs by hand and re-stocking these reefs with natural enemies of the starfish such as the *giant triton* shellfish are among the control methods proposed.

Scientific Classification. The Crown of Thorns is a member of the class *Asteroidea*, phylum *Echinodermata*. It is genus *Acanthaster*, species *A.planci*.

CSIRO is the largest research body in Australia and one of the largest in the world. Its full name is Commonwealth Scientific and Industrial Research Organization. Essentially, it is an applied research organization. But much of its work is pure research into basic scientific theories. Radio astronomy is a good example of this type of research.

Organization. The CSIRO is a federal body administered by an executive made up of a chairman, who is a distinguished scientist, and several full-time and part-time members representing most branches of science. The federal government provides about two-thirds of the annual budget of more than $A50 million. The rest of the budget comes from various industries, such as the dairy, beef, wheat, and tobacco industries.

The CSIRO has more than 30 divisions, and employs a staff of about 6,000, of whom about a third are professional scientists. The CSIRO scientists specialize in a wide variety of research, including animal genetics, dairy production, computer science, food preservation, irrigation, land development, mathematical statistics, oceanography, radio astronomy, wildlife, and wool production.

The Work of the CSIRO extends over almost every field of science and technology. In agricultural science, for example, the CSIRO tropical pastures laboratory at Townsville in northern Queensland is the centre for study of *Stylocanthes*—a lucerne-like plant originally introduced from Brazil. By genetically manipulating these plants, CSIRO scientists expect to develop a plant that will thrive under all tropical conditions and improve pastures so that they can feed greater herds of beef cattle.

The CSIRO also devotes considerable resources to developing and applying methods of shrink-proofing, dyeing, and processing wool, and of making wool into yarns and fabrics. It holds many world patents in these areas.

During the Australian mineral boom of the late 1960s, the organization expanded its research in mineralogy, and developed a new technique using isotopes to find and classify minerals.

Because of the hot and arid nature of much of Australia, the CSIRO is trying to develop cheap *desalination* techniques that would make salty water often found under the ground suitable for drinking.

A division of the CSIRO operates the giant radio telescope at Parkes and a giant radio heliograph that takes radio "pictures" of the sun (see ASTRONOMY in this volume). The same division of CSIRO has also pioneered in cloud-seeding to produce rain. Several states in Australia maintain regular cloud-seeding programmes during drought and bush-fire seasons (see RAIN MAKING in the main volumes).

An interesting activity of the CSIRO has achieved considerable success in ridding cattle-raising areas of certain destructive flies. In such areas, as the number of cattle increases, there is an increase in the cattle droppings in which the flies generally breed. In an effort to get rid of the flies, the CSIRO imported African dung beetles, which roll away the cattle droppings. These beetles were spread in many areas of the tropical north of Australia.

A notable experiment with sheep conducted by the CSIRO has developed techniques that permit food to bypass certain parts of the sheep's digestive system. As a result, the food goes directly into the animal's fourth stomach, and a maximum amount of protein is converted into meat and wool.

An important job of the CSIRO is to maintain the national standards of measurements. This work is carried on through the National Standards Laboratory.

History. The CSIRO owes its origin in 1920 to Britain's concern that Germany had been able to use superior technology and industrial might during World War I. A 1915 British report on scientific and technological research influenced the federal government to form the Institute of Science and Industry in 1920. It was replaced by the Council of Scientific and Industrial Research (CSIR) in 1926.

During World War II, research was accelerated in the fields of industrial technology and electronics, including much original work on radar. In 1949, the CSIR was reorganized and given the title CSIRO with Sir Ian Clunies Ross, an outstanding veterinary scientist, as its first director.

CSR is one of the largest Australian public companies. It markets all Australia's sugar exports, refines 96 per cent. of all refined sugar consumed in Australia, and finances the Queensland sugar crop. The company also manufactures various types of building materials and has interests in ready-mixed concrete, chemical, and mining companies. A British businessman, Edward Knox (1819-1901), founded CSR in 1855. It began milling in northern New South Wales in the 1870s, then expanded into Queensland. The company changed its name from the Colonial Sugar Refining Company Limited to CSR Limited in 1973.

CULOTTA, NINO (1907-), is the pen-name of JOHN O'GRADY, the popular Australian author who wrote *They're a Weird Mob,* published in 1957. The book has sold more copies than any other book written by an Australian. It is an amusing story of an Italian migrant who is unfamiliar with Australian manners and language. O'Grady also wrote *Cop This Lot, Gone Fishin', No Kava for Johnny, The Things They Do to You,* and *Aussie English.* He was born in Sydney.

CUNNINGHAM, ALLAN (1791-1839), an Australian botanist and explorer, became famous for his explorations. In 1823, he pioneered a route from Liverpool Plains to Bathurst. In 1827, he discovered a vast area of rolling country that he called the Darling Downs. In 1828, he found a way from the sea at Moreton Bay to the Darling Downs through Cunningham's Gap. Squatters flocked to the area after his favourable report on it. Cunningham was born at Wimbledon, in England. He settled in Sydney in 1816.

CUP MOTHS are small to medium-sized, rather stout, furry moths of dark colour. Australia has about 80 species, most of which are tropical. Cup moth caterpillars are rather like slugs, with their heads retracted under their bodies. They appear to glide over the foliage on which they feed because they have shortened legs. Most species have bunches of sharp, brittle, stinging hairs, which are normally folded away, but which are exposed and erected when the caterpillar is disturbed. Many caterpillars are brightly coloured, with a bold pattern that warns would-be attackers of the dangers of coming into contact with the defensive hairs.

Scientific Classification. Cup moths belong to the family *Limacodidae*.

CURNOW, ALLEN. See LITERATURE OF NEW ZEALAND (Poetry) in this volume.

CURRAWONGS are large birds belonging to the Australian crow-shrike family. They are about 50 centimetres (19 inches) long, with strong bills and yellow eyes. They are black, black and white, or grey. Currawongs live in eastern Australia from Cape York to Tasmania and Lord Howe Island and across southern Australia. The six main kinds actually belong to only two species, pied currawongs and grey currawongs. Their name is derived from the call *curra-wa-currawong* of the pied currawong.

Scientific Classification. Currawongs belong to the family *Cracticidae*, genus *Strepera*. The pied, Lord Howe Island, and black currawong are *S. graculina*. The grey, black-winged, and brown currawong are *S. versicolor*.

CURRENCY

CURRENCY in all the countries of Australasia is based on the decimal system. The dollar is the unit of currency in Australia, Malaysia, New Zealand, and Singapore. In Indonesia, the unit of currency is the rupiah.

Exchange Rates express the price of one currency in terms of another. The values of currencies vary in relation to other currencies, depending on how much of a particular currency is wanted on the world market. See MONEY in the main volumes.

History. During the early days of settlement in Australia, Britain was short of coins for its own use and a variety of coins, including Spanish dollars, circulated in Australia. In 1825, the British government passed laws allowing British money to be used. Australia imported this money until the first Australian mint opened in 1855. After 1901, the federal government controlled currency. But the first distinctively Australian coins were not struck until 1910. Private banks printed their own notes until 1910. The first federal notes were printed in 1913. Australia introduced decimal currency in 1966.

In New Zealand, the finance Act of 1932-1933 authorized the issue of New Zealand coins of distinctive design and declared that British coins would no longer be legal tender after Feb. 1, 1935. New Zealand introduced decimal currency in 1967.

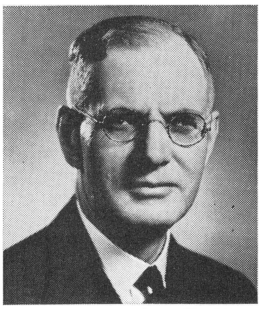
See also HOLEY DOLLAR in this volume; ROYAL MINT in the other Australasian volume.

CURRENCY CONVERSION TABLES

Australia	Britain	Indonesia	Malaysia	Singapore	New Zealand	United States
$A	£	Rupiahs	$M	$S	$NZ	$US
1.00	0.64	608	3.60	3.60	1.04	1.48
2.00	1.28	1,216	7.20	7.21	2.08	2.97
3.00	1.93	1,824	10.80	10.81	3.12	4.45
4.00	2.57	2,432	14.40	14.42	4.17	5.94
5.00	3.22	3,040	18.00	18.03	5.21	7.42
6.00	3.86	3,648	21.60	21.63	6.25	8.91
7.00	4.51	4,256	25.20	25.24	7.30	10.39
8.00	5.15	4,864	28.80	28.84	8.34	11.88
9.00	5.80	5,472	32.40	32.45	9.38	13.36
10.00	6.44	6,080	36.00	36.06	10.42	14.85
100.00	64.46	60,800	360.00	360.60	104.29	148.50

Australia	Canada	Fiji	France	Germany (West)	Greece
Dollars	Dollars	Dollars	Francs	D/Marks	
Cents	Cents	Cents	Centimes	Pfennig	Drachmae
50.00	71.69	58.89	361.10	197.10	2,184
20.00	28.67	23.55	144.44	78.84	873
5.00	7.16	5.88	36.11	19.71	218
1.00	1.43	1.17	7.22	3.94	43

Australia	Hong Kong	India	Italy	Japan	Netherlands
Dollars	Dollars	Rupees	Lire	Yen	Guilders
Cents	Cents				Cents
50.00	371.55	599.85	47,700	20,829	206.10
20.00	148.62	239.94	19,080	8,331	82.44
5.00	37.15	59.98	4,770	2,082	20.61
1.00	7.43	11.99	954	416	4.12



Australian News

John Curtin

Australian Photo Agency

Betty Cuthbert

CURTIN, JOHN (1885-1945), became prime minister of Australia during World War II as leader of the Labor party. He formed a Labor government in September, 1941, after the defeat of the Country party, led by Arthur Fadden. Curtin immediately used the wide wartime powers of the government to organize Australia for the conflict.

Curtin was born at Creswick, in Victoria. He left school early, and soon became a member of the Labor movement. In 1916 and 1917, he took a leading part in campaigns against conscription for World War I. In 1917, he became editor of *The Westralian Worker,* a radical political journal. He wrote many socialist and pacifist articles in the paper. He entered parliament as the member for Fremantle in 1928, and became leader of the Labor party only six years later.

As prime minister, he introduced rationing, price control, and wage fixing, as well as controls over manpower and raw materials to ensure that factories produced only needed items. By February, 1942, the Japanese had overrun Malaya, Indonesia, the Philippines, and New Britain. Curtin decided on closer co-operation with the United States, and worked closely with Douglas MacArthur, commander of the Allied forces in the south-western Pacific.

The Australian people, under Curtin's leadership, became united in the war effort. In 1943, they gave his government an overwhelming victory in a general election. Industry expanded rapidly. Australia provided food, clothing, and arms for each Allied army in the Pacific area. The Allied forces pushed back the Japanese forces. But Curtin died in July, 1945, only six weeks before World War II ended.

CUTHBERT, BETTY (1938-), an Australian sprinter, won four gold medals at Olympic Games. In 1956, at the Olympic Games in Melbourne, she won three gold medals. She won the 100 metres and 200 metres, and was a member of the women's team that won the 4 × 100 metres relay. Between 1956 and 1963, she set world records for distances ranging from 60 metres to 440 yards. In 1964, she won a fourth gold medal in the 400 metres at the Tokyo Olympics. She was born in Sydney.

CUTLER, SIR RODEN (1916-), was appointed governor of New South Wales in 1966. He was born at Sydney and educated at Sydney University. In November, 1941, during World War II, he won the Victoria Cross for exceptional courage in driving the enemy back and establishing outposts which were a big factor in the capture of Merdjayoun in Syria on June 9, 1941. He captured three machine-gun nests and eight prisoners single-handed.

From 1946 to 1966, Cutler held diplomatic posts in New Zealand, Ceylon, Egypt, Pakistan, the United States, and The Netherlands.

CYCLING is a popular amateur and professional sport in Australia and New Zealand. It is also popular in Indonesia, Malaysia, and Singapore. In Australia, about 10,000 amateur cyclists compete under state associations which are controlled by the Amateur Cyclists Association of Australia. About 3,000 professional riders compete in various states. They belong to state leagues under the Australian Cycling Council. The New Zealand Amateur Cycling Association has more than 1,000 members.

Australia's top one-day road races for professionals are the 258-kilometre (161-mile) Melbourne to Warrnambool race, and the 200-kilometre (125-mile) Goulburn to Sydney race. The nine-day Sun Tour of Victoria, over 1,760 kilometres (1,100 miles), is Australia's foremost long-distance race. The New South Wales Tour of the West, which covers 1,600 kilometres (1,000 miles), is another famous race. The 1,632-kilometre (1,020-mile) road race held in November in the North Island is New Zealand's main road race.

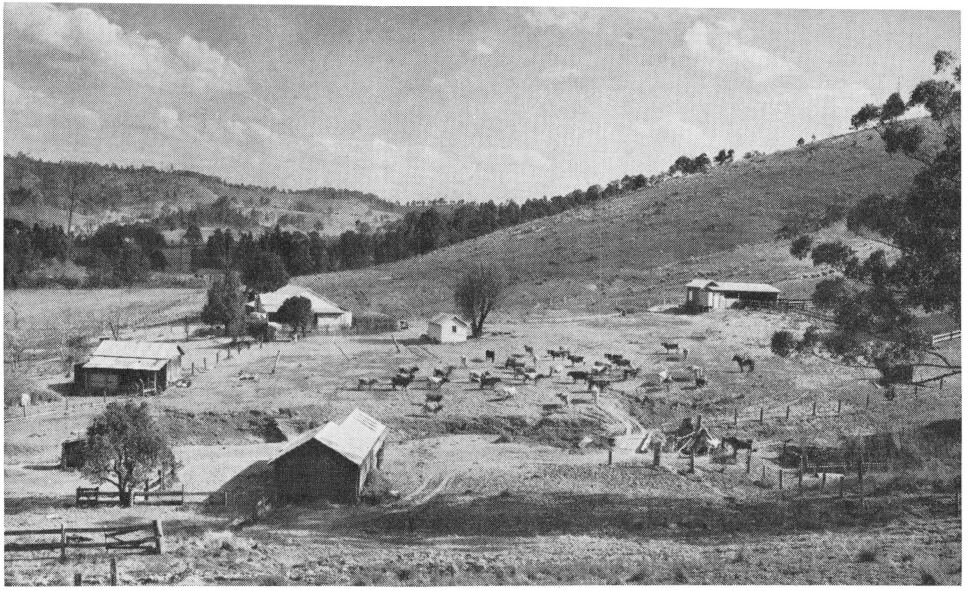
Barry Waddell, a West Australian, won five successive Sun Tours between 1964 and 1968, and is undisputed champion of that classic. Other world-famous Australian cyclists include E. L. Gray, Russell Mockridge, Sid Patterson, and Sir Hubert Opperman.

The 1974 Commonwealth Games in Christchurch, New Zealand, greatly increased the interest in cycling in Australasia. Two Australians, John Nicholson and Clyde Sefton, won gold medals in the two main cycling events at the games, the sprint title and the 183-kilometre (114-mile) road race.

See also Bicycle Racing in the main volumes. Mockridge, Russell; Opperman, Hubert; and Patterson, Sid, in the other Australasian volume.

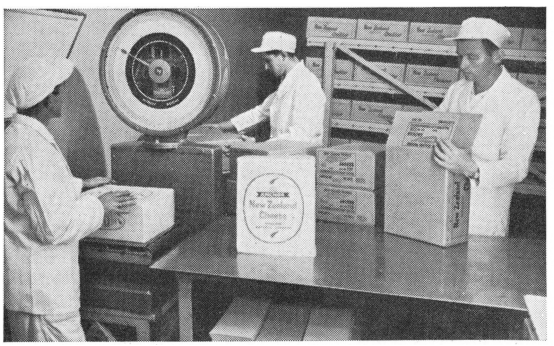
DAD AND DAVE. See Rudd, Steele, in the other Australasian volume.

DADSWELL, LYNDON (1908-), an Australian sculptor, became assistant to the sculptor Paul Montford (1868-1938) when Montford was working on his carvings for the war memorial in Melbourne. In 1937, Dadswell succeeded Raynor Hoff as teacher of sculpture at East Sydney Technical College. In that post, he exerted a powerful influence on art teaching in New South Wales. Always responsive to international trends, Dadswell's sculpture has survived many changes in style. He was born in New South Wales and studied in Sydney and London.



Australian News and Information Bureau; New Zealand National Publicity

Dairy Farms in Australia are situated mainly in the temperate regions of the east and south-east.



Dairy Products, such as butter and cheese, are among New Zealand's chief exports.

DAIRY INDUSTRY is a leading industry in Australia and New Zealand. Almost a third of the farms in Australia, and about half the farms in New Zealand, are dairy farms. Together, they produce more than 13,200 million litres (2,900 million gallons) of milk each year. A small quantity of the milk is sold as fresh milk. The rest is made into a variety of other dairy products, such as butter, cheese, evaporated milk, and dried milk. Australian dairy farmers earn about $A 450 million each year from the sale of their produce, and New Zealand farmers earn about $NZ 237 million. New Zealand exports about 4 out of every 5 kilograms of its production of butter, cheese, and processed milk. Dairy products are second only to wool in earning foreign currency for New Zealand.

In Indonesia and Malaysia, farmers obtain milk from buffaloes, cows, and goats. But neither country has a large dairy industry.

Dairy Farming

Farms. The whole of New Zealand has a temperate climate suitable for dairy farming. In Australia, dairy farms are located only in temperate or subtropical areas because tropical regions are not suitable.

The size of a dairy farm depends on the number of cows from which a farmer can make a living. This, in turn, depends on whether the farmer sells *butterfat* (cream for making butter), for which he obtains a low price, or fresh milk, for which he obtains a much higher price. A farmer who sells mainly milk can make a satisfactory living from 30 cows. But a farmer who sells mainly butterfat must keep a herd of at least 50 cows. In New Zealand, most dairy farmers specialize in producing butterfat. Their farms have, on average, about 90 cows. In Australia, where more farmers sell fresh milk, dairy farms, on average, have only about 45 cows.

The area of land needed to feed the cows depends on the climate and the quality of the soil. In parts of Australia that are irrigated, each cow can get enough to eat from only 0·8 hectares (2 acres) of land. In drier and less fertile areas, each cow needs about 4 hectares (10 acres) of pasture. Dairy farms vary in size from about 40 hectares (100 acres) in irrigated areas to about 200 hectares (500 acres) in dry regions. Most dairy farms cover an area of between 60 and 80 hectares (150 and 200 acres). Farmers use wire fences to divide the land and control the areas where cattle graze.

Cattle. Australia has slightly more than 4 million dairy cattle and New Zealand has slightly less than 4 million. Not all of them provide milk. In fact, about one-third of the dairy cattle at any one time are *dry stock* (unable to provide milk).

The breed of cattle a farmer keeps depends on whether he specializes in producing fresh milk or butterfat. In Australia, farmers who sell fresh milk keep mainly Friesian cattle, because they produce large amounts of milk. In contrast, New Zealand farmers keep mainly Jersey cows, because their milk contains a high proportion of butterfat. Australian farmers who specialize in butterfat production keep Jerseys or Illawarra Shorthorns.

DAIRY INDUSTRY

Farming Methods. Good milk-producing cows need a large amount of fodder containing carbohydrates and protein. In Europe, dairy farmers employ several farm workers to grow special crops, harvest them, and feed them to their cattle. In Australia and New Zealand, land has always been fairly cheap, and labour comparatively expensive. Australian and New Zealand farmers produce milk cheaply by allowing their cows to graze freely for most of the time in open pastures. The cows do not need many farm workers to look after them.

Free grazing is successful only in areas where enough rain falls to produce rich pastures. For this reason, most dairy farms in both Australia and New Zealand are located in areas that have a rainfall of more than 762 millimetres (30 inches) a year. New Zealand has many such areas, but, in Australia, dairy farming is limited to the eastern, south-eastern, and south-western coasts of the continent.

Cows in both Australia and New Zealand yield about 2,730 litres (600 gallons) of milk a year. In both countries, farmers have increased the yields of their herds by breeding and by improving pastures on which the cattle graze.

Kinds of Dairy Products

Dairy farms in both Australia and New Zealand produce much more milk than the people of either country can drink. Australian dairy farms produce about 7,273 million litres (1,600 million gallons) of milk a year. Out of every 100 litres, only 24 litres are sold as fresh milk. Of the rest, 58 are used to make butter, 10 to make cheese, and 8 to make dried or evaporated milk. New Zealand dairy farms produce about 6,255 million litres (1,376 million gallons) of milk a year. Out of every 100 litres, 73 are used to make butter, 15 to make cheese, and 4 to make dried and evaporated milk. Only 8 are sold as fresh milk.

Farmers make only a small quantity of butter themselves. Most butter and cheese is made in factories. In Australia, more than 11,000 people work in the 315 factories that make butter and cheese and the nearly 90 factories that make dried or evaporated milk. Farmers own most of the butter factories themselves. New Zealand has more than 150 factories for butter and cheese, and 68 factories for processed milk, which together employ more than 4,500 people. Farmers' co-operatives own many of the factories. Each farmer who supplies cream to a co-operative factory must own some stock in it. He shares in the profits from butter-making in proportion to the amount of stock he holds in the factory.

Selling Dairy Products

In both Australia and New Zealand, farmers obtain a much higher price for fresh milk than for milk used to make butter, cheese, or other products. Most farmers who specialize in selling fresh milk have farms close to large cities. The amount of fresh milk they can sell during a single year is limited to a quota fixed by the government. The farmers can sell any surplus milk to dairy factories.

Dairy farmers who specialize in butterfat production can sell as much milk or cream as they like to processing factories. The government guarantees them a fixed price for every pound of butterfat contained in the milk or cream they supply.

Australians export approximately 25 per cent. more of their dairy produce than they eat themselves. They consume about 193,040 tonnes (190,000 tons) of butter, cheese, and other dairy products, and export about 243,840 tonnes (240,000 tons). But dairy produce sold within Australia is worth more than double the exports of dairy produce —$A 347 million for home sales in comparison with $A 103 million for export sales, mainly because sales within Australia are supported by a bounty of about $A 46 million a year.

In contrast, New Zealanders export more than six times as much dairy produce as they consume. They eat only about 86,360 tonnes (85,000 tons) of dairy products, and export more than 527,304 tonnes (519,000 tons). Sales of dairy products within New Zealand are worth about $NZ 31 million a year, and export sales are worth about $NZ 207 million a year.

In the early 1970s, Britain was the main customer for exports of butter, cheese, and other dairy products from both Australia and New Zealand. Arrangements were made with the European Economic Community enabling Britain to continue to import butter and cheese from New Zealand. A similar arrangement was not made for Australia, which faced the prospect of finding other markets or reducing its milk production.

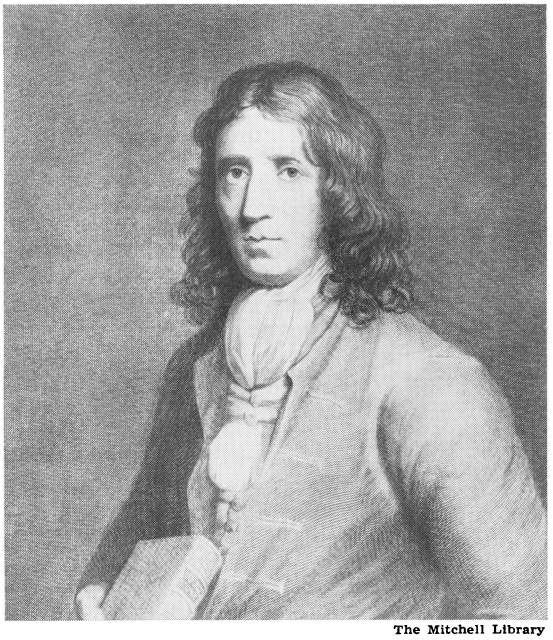
See also CATTLE in the main volumes; ILLAWARRA SHORTHORNS in this volume.

DALBY (pop. 8,890) is a town on Myall Creek, a tributary of the Condamine River on the fertile black soil plains of the Queensland Darling Downs. Farmers in the area grow wheat, sorghum, and barley and raise cattle, sheep, and pigs. Dalby is Queensland's biggest wheat intake centre and has the state's largest rural saleyards. Secondary industries include two flour mills, a butter factory, food processing plants, and plants that make agricultural implements and steel and aluminium products. The nearby Bunya Mountains are a major tourist attraction. The town was first settled in 1841 and was proclaimed a municipality in 1863.

DALEY, VICTOR (1858-1905), was an Irish-born Australian poet. He began his poetic career as a contributor to the Sydney *Bulletin*. His volumes of poetry include *At Dawn and Dusk* (1898), *Wine and Roses* (1911), and *Creeve Roe* (1947).

VICTOR JAMES WILLIAM DALEY was born at Navan, in Ireland, and went to Australia in 1878. His lyric poetry had a whimsical quality. Under the name CREEVE ROE, he wrote satirical verse that was chiefly concerned with social criticism.

DALY is a river on the north-western coast of the Northern Territory. It is formed by the junction of the Flora and Katherine rivers and empties into Anson Bay. The Tipperary station on the Daly River, 145 kilometres (90 miles) south of Darwin, produces sorghum and other crops. It covers 9,065 square kilometres (3,500 square miles).



The Mitchell Library

William Dampier visited New Holland (now Australia) as a privateer in 1688 and as an explorer in 1699.

DAMPIER (pop. 3,558), is a deepwater port and township at King Bay on the northwest coast of Western Australia. The port was constructed by Hamersely Iron Pty. Ltd. as the chief outlet for iron ore from Mount Tom Price. In the early 1970s, the company exported more than 12 million tonnes (12 million tons) of iron ore a year from Dampier. The port has highly mechanized loading facilities. The town has an iron ore pelletizing plant, a desalination plant to convert sea water into fresh water, and a solar salt farm.

DAMPIER, WILLIAM (1651-1715), was a British explorer and *privateer*—a pirate encouraged by his government to attack the ships of other nations. He was a good writer, and his accurate observation of men, nature, and places made his countrymen interested in eastern Asia and the Pacific Ocean.

Early Life. Dampier was born at East Coker, in Somerset. He first became interested in birds, animals, and soils on his father's farm. After his parents died, Dampier went to sea. He went to Newfoundland in 1670. His next voyage was to Java. On his return to Britain, Dampier joined the Royal Navy and fought the Dutch in 1673.

Voyages as a Privateer. Dampier went to Jamaica in 1674 to take up a position as submanager of a plantation. But he did not like life ashore. He joined a ship and made coastal voyages around the West Indies. Dampier took part in attacks on Spanish ships and towns in South America. But he was more interested in visiting places and writing about what he saw than he was in piracy.

Dampier joined another ship, the *Cygnet*. The crew of this ship had forced its commander, Captain Swan, to turn pirate. They set out for the Philippines to attack the Spaniards, but ran short of food. They planned to turn cannibal and eat the officers if they ran out of provisions. Captain Swan said that Dampier would be safe because he was so thin. The crew left the captain and 36 of the crew at Mindanao in the Philippines, then sailed on to Tonkin and Cochin China (now Vietnam) and Formosa.

The pirates decided to sail for India. They sailed first to Timor, to avoid the Spaniards, then decided to land on New Holland (Australia), which was nearby, to see what it could provide for them. They landed on the western coast of Australia at Cygnet Bay on Jan. 4, 1688, and stayed nine weeks. But they found the land dry and barren, and they disliked the Aborigines. They sailed to the Nicobar Islands, where Dampier escaped from his pirate companions. He travelled through south-eastern Asia and returned to Britain in 1691.

Voyage of the *Roebuck*. In Britain, Dampier became well known when he published his journal. As a result, he was given command of an old ship, the *Roebuck,* to explore the coasts of Australia (see ROEBUCK in the other Australasian volume). Dampier described his crew as a dirty and murderous band of ruffians.

On Jan. 14, 1699, Dampier left Britain. He sailed to Australia by way of Brazil and the Cape of Good Hope. He sighted the western coast of Australia near Houtman Abrolhos. Then he sailed north and anchored in Shark Bay, where he landed. He saw beautiful wild flowers, but found no water. Dampier then sailed farther north to Dampier Archipelago, Rosemary Island, and Roebuck Bay. The coastal land was dry, sandy, and flat. He had to sail to Timor for stores and water.

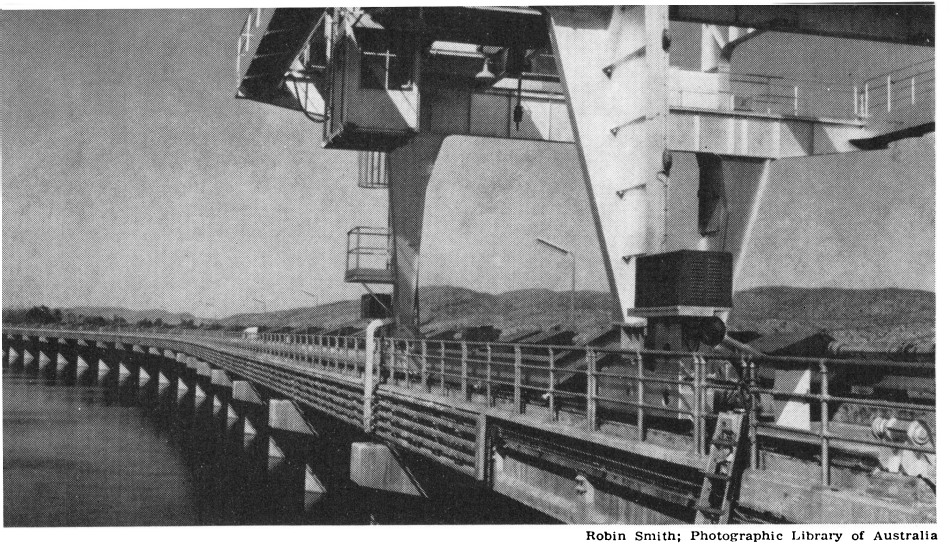
In December, 1699, he set out from Timor to explore New Guinea. He sailed along the northern coast till he came to the island of New Hanover. The Dutch explorer Abel Janszoon Tasman had already charted this area. But he had shown the islands of New Hanover, New Ireland, and New Britain as part of the New Guinea mainland. Dampier also failed to discover that there were three islands. But he did find the passage that separates New Britain from New Guinea. This passage is now called Dampier Strait. Dampier was looking for a place where Britain could extend its spice trade, and he recommended New Britain.

Dampier returned to Timor. The *Roebuck* sank when Dampier called at Ascension Island in the South Atlantic Ocean. Luckily, a British warship picked up Dampier and his crew.

Later Life. When Dampier reached Britain, he was court-martialled for ill-treating one of his officers. He was found guilty.

Dampier made another voyage as a privateer in 1702. His account of how a quarrelsome officer, Alexander Selkirk, was marooned during this voyage gave the writer Daniel Defoe the idea for the story *Robinson Crusoe*. Dampier made a further voyage as a privateer in 1708, but little is known of his later activities.

See also HISTORY OF AUSTRALIA (The Sea Discovery of Australia; map) in this volume.



Robin Smith; Photographic Library of Australia

The Ord River Scheme in Western Australia includes a diversion dam, built in 1963, and a main dam designed to hold more than nine times the volume of water in Sydney Harbour.

DAMS are of vital importance to Australia, which is the world's driest continent. Large dams blocking Australia's main rivers are used mainly to provide water for irrigation. The table in this article lists the main dams in Australasia in order of height as measured from the lowest point in the natural ground before excavation. The capacity column gives the capacity of the reservoir. Dams in Australia, particularly in the Snowy Mountains area, and dams in Indonesia, Malaysia, and New Zealand also provide water for hydro-electricity.

See also IRRIGATION and ELECTRIC POWER in this volume and SNOWY MOUNTAINS SCHEME in the other Australasian volume.

LARGEST DAMS IN AUSTRALASIA

Dam	Location	Height (metres)	Height (feet)	Type	Capacity (million cubic metres)	Capacity (acre-feet)
Indonesia						
Jatiluhur	Citarum River, near Purwakarta, West Java	104	339	Rockfill	3,000	2,430,000
Karangkates*	Brantas River, near Naland, East Java	100	328	Rockfill	340	278,000
Riam Kanan*	Riam Kanan River, near Martapura, South Borneo	56	183	Earthfill	1,200	973,000
Sempor*	Jatinegara River, near Gombonb, Central Java	54	175	Rockfill	80	61,600
Selorejo*	Konto River, near Batu, East Java	46	150	Earthfill	60	50,250
Pasir Gombong	Citarum River, near Purwakarta	34	110	Earthfill	3,000	2,430,000
Ubrug	Citarum River, near Purwakarta	31	103	Earthfill	3,000	2,430,000
Malaysia						
Jor Dam	Batang Padang River, near Tapah, West Malaysia	50	164	Earthfill	4	3,120
Ayer Itam*	Sungei Ayer Itam River, near Georgetown, Panang	46	150	Earthfill	2	1,944
Sultan Abu Bakar	Bertam River, near Ringlet, West Malaysia	46	150	Rockfill	7	5,420
Ampangan Ayer	Kuala Sleh River, near Kuala Lumpur, Selangor	30	100	Arch gravity	18	14,661
New Zealand						
Benmore	Waitaki River, near Oamaru, South Island	95	312	Earthfill	2,200	1,775,000
Maraetai	Waikato River, near Hamilton, North Island	87	284	Concrete Arch	94	76,368
Roxburgh	Clutha River, near Roxburgh, South Island	73	240	Gravity	56	45,399
Karapiro	Waikato River, near Hamilton	59	194	Concrete Arch	87	70,531
Arapuni	Waikato River, near Hamilton	55	180	Gravity	33	26,996
Whakamaru	Waikato River, near Hamilton	54	177	Gravity	101	82,043
Ohakuri	Waikato River, near Hamilton	49	161	Earthfill	210	170,047
Nihotupu (main)	Nihotupu River, near Auckland	43	141	Gravity	32	26,226
Lower Huia*	Huia Stream, near Auckland	40	130	Earthfill	7	5,650
Mangatawhiri (Upper)	Mangatawhiri River, near Auckland	39	128	Earthfill	21	16,625
Cossey's	Cossey's Creek, near Auckland	37	121	Earthfill	14	11,650
Huia	Huia Stream, near Auckland	35	116	Gravity	2	1,970
Matahina	Rangitaiki River, near Rotorua, North Island	35	116	Rockfill	880	710,000
Tiritea	Tiritea River, near Palmerston North, North Island	33	108	Concrete Arch	2	1,370
Benhopai	Waihopai River, near Blenheim, South Island	32	104	Concrete Arch	0.2	138
Atiamuri	Waikato River, near Hamilton	32	104	Gravity, Earthfill	23	18,600
Falls	Manuherikia, near Dunedin, South Island	31	101	Rockfill	11	8,918

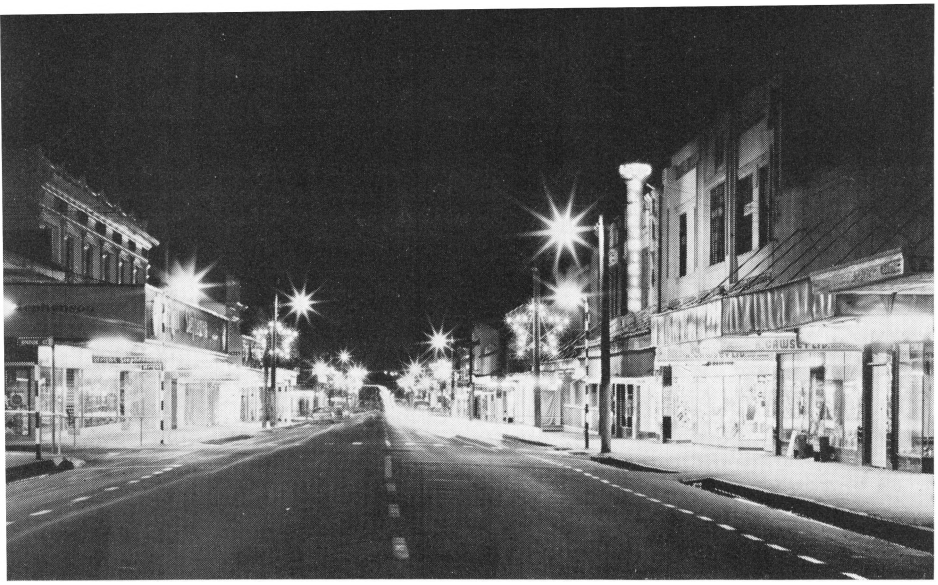
* Under Construction

Australia

Dam	Location	Height (Metres)	Height (feet)	Type	Capacity (million cubic metres)	Capacity (acre-feet)
Talbingo	Tumut River, near Tumut, N.S.W.	153	503	Rockfill	920	747,000
Gordon*	Gordon River, near Hobart	140	460	Cupola	11,700	10,080,000
Eucumbene	Eucumbene River, near Cooma, N.S.W.	116	381	Earthfill	4,800	3,860,000
Warragamba	Warragamba River, near Sydney	112	369	Gravity	2,050	1,664,000
Copeton*	Gwydir River, near Inverell, N.S.W.	111	365	Earth-, Rockfill	1,360	1,100,000
Cethana	Forth River, near Devonport, Tas.	110	360	Rockfill	180	143,000
Blowering	Tumut River, near Tumut	101	330	Rockfill	1,630	1,320,000
Geehi	Geehi River, near Cooma	91	300	Rockfill	21	17,100
Upper Yarra	Yarra River, near Melbourne	89	293	Earth-, Rockfill	210	168,000
Wyangala*	Lachlan River, near Cowra, N.S.W.	86	281	Earth-, Rockfill	1,230	1,000,000
Tumut Pond	Tumut River, near Cooma	84	275	Arch-Constant Radius	53	43,400
Devil's Gate	Forth River, near Devonport	82	270	Cupola	230	190,000
Eildon	Goulburn River, near Alexandra, Vic.	79	259	Earth-, Rockfill	3,390	2,748,000
Burrinjuck	Murrumbidgee River, near Yass, N.S.W.	78	255	Gravity	1,030	837,000
Cardinia*	Cardinia Creek, near Melbourne	76	250	Earth-, Rockfill	290	235,000
Glenbawn	Hunter River, near Scone, N.S.W.	74	243	Earthfill	360	293,000
Corin	Cotter River, near Canberra	72	235	Rockfill	75	60,800
Nepean	Nepean River, near Sydney	70	230	Gravity	82	66,600
Avon	Avon River, near Sydney	69	226	Gravity	210	174,000
Burrendong	Macquarie River, near Wellington, N.S.W.	67	220	Earth-, Rockfill	1,190	964,000
Jindabyne	Snowy River, near Cooma	67	220	Rockfill	690	558,000
Ord River*	Ord River, near Wyndham, W.A.	67	220	Rockfill	5,700	4,600,000
Tooma	Tooma River, near Cooma	67	220	Earthfill	28	23,000
Canning	Canning River, near Perth	66	218	Gravity	90	75,400
Woronora	Woronora River, near Sydney	64	209	Gravity	70	57,400
Kangaroo Creek*	Torrens River, near Adelaide	58	190	Rockfill	30	22,000
Clarendon*	Onkaparinga River, near Adelaide	55	186	Rockfill	38	31,000
Serpentine	Serpentine River, near Perth	54	177	Earthfill	180	144,000
Monduran*	Kolan River, near Bundaberg, Qld.	52	171	Earth-, Rockfill	586	475,000
Perserverance Creek	Perserverance Creek, near Toowoomba, Qld.	52	170	Rockfill	30	24,000
Cordeaux	Cordeaux River, near Sydney	49	162	Gravity	90	75,700
Cataract	Cataract River, near Sydney	48	156	Gravity	80	65,700
Myponga	Myponga Creek, near Adelaide	48	156	Arch-Constant Radius	30	22,000
Somerset	Stanley River, near Brisbane	47	153	Gravity	890	724,000
Bellfield	Fyans Creek, near Stawell, Vic.	46	152	Earth-, Rockfill	80	63,700
Stirling	Harvey River, near Harvey, W.A.	46	152	Earthfill	60	46,200
Bendora	Cotter River, near Canberra	46	150	Cupola	10	9,000
Carcoar	Belubula River, near Bathurst, N.S.W.	46	150	Cupola	40	30,000
Maroon*	Burnett Creek, near Beaudesert, Qld.	46	150	Earth-, Rockfill	40	31,000
Parangana	Mersey River, near Devonport	46	150	Rockfill	20	20,000
Scotts Peak*	Huon River, near Hobart	46	150	Rockfill	3,000	2,750,000†
Bungal*	West Moorabool River, near Ballarat	46	150	Rockfill	60	48,000
Logue Brook	Logue Brook, near Cookernup, W.A.	45	148	Earthfill	20	19,700
Tinaroo Falls	Barron River, near Mareeba, Qld.	45	148	Gravity	400	330,000
Eungella	Broken River, near Collinsville, Qld.	45	146	Earth-, Rockfill	130	106,000
Pindari	Severn River, near Inverell	45	146	Rockfill	40	30,000
South Para	South Para River, near Adelaide	45	146	Earthfill	50	41,500
Greenvale*	Yuroke Creek, near Melbourne	44	144	Earth-, Rockfill	27	21,500
Fairbairn*	Nogoa River, near Emerald, Qld.	44	145	Earthfill	1,440	1,170,000
Borumba	Yarba Creek, near Gympie, Qld.	44	144	Rockfill	40	34,500
Jounama	Tumut River, near Tumut	44	144	Rockfill	40	35,300
Mount Bold	Onkaparinga River, near Adelaide	44	144	Arch-Constant Radius	30	24,500
Wuruma	Nogo River, near Eidsvold, Qld.	44	144	Gravity	190	157,000
Hume	Murray River, near Albury, N.S.W.	43	142	Earthfill, Gravity	3,100	2,500,000
Silvan	Stoneyford Creek, near Melbourne	43	142	Earthfill	40	32,600
Island Bend	Snowy River, near Cooma	43	140	Gravity	3	2,450
South Dandalup	South Dandalup River, near Perth	43	141	Earthfill	208	168,000
Tallowa	Shoalhaven River, near Sydney	43	140	Gravity	146	118,000
Mundaring	Helena River, near Perth	43	140	Gravity	80	62,400
Rowallan	Mersey River, near Devonport	43	140	Rockfill	170	138,000
Eppalock	Campaspe River, near Bendigo, Vic.	42	139	Earth-, Rockfill	310	250,000
Keepit	Namoi River, near Tamworth, N.S.W.	42	139	Gravity, Earthfill	420	345,000
Koombooloomba	Tully River, near Innisfail, Qld.	41	135	Gravity, Rockfill	180	146,000
Liddell Cooling Water	Gardener's Creek, near Muswellbrook, N.S.W.	41	135	Earthfill	150	120,000
Little Nerang	Little Nerang Creek, near Southport, Qld.	41	135	Gravity	8	6,800
Maroondah	Watts River, near Melbourne	41	135	Gravity	30	23,000
Repulse	Derwent River, near Hobart	41	134	Cupola	7	5,900
Tantangara	Murrumbidgee River, near Cooma	41	133	Gravity	250	205,000
Moondarra	Tyers River, near Moe, Vic.	40	130	Rockfill	30	25,000
Paloona*	Forth River, near Devonport	40	130	Rockfill	9	7,000
Serpentine*	Serpentine River, near Hobart	40	130	Rockfill	3,000	2,750,000†

* Under Construction

† Reservoir common to Scotts Peak and Serpentine Dams



Barrett's Studios

Dannevirke has many descendants of early Scandinavian settlers. The town is the centre of sheep and dairy farming in the southern Hawkes Bay area in New Zealand.

DANDENONG RANGES. See VICTORIA (Things to See and Do) in the other Australasian volume.

DANNEVIRKE (pop. 5,610) is a town in the southern part of the North Island of New Zealand. It is the centre of a prosperous sheep-farming and dairy-farming area in southern Hawkes Bay.

The site of Dannevirke was originally part of a stretch of dense natural bush 113 kilometres (70 miles) long. In 1872, Danish settlers reached the Dannevirke area from Napier, the chief port of Hawkes Bay, to clear the bush and develop pastures for dairy farming. They were the first of about 2,000 Danes to settle in the area. They were followed by Norwegian and Swedish settlers. Most of the later Scandinavian settlers moved to Norsewood, to the north of Dannevirke.

See also HAWKES BAY in this volume.

DAP. See POLITICAL PARTIES OF MALAYSIA (Minor Parties) in the other Australasian volume.

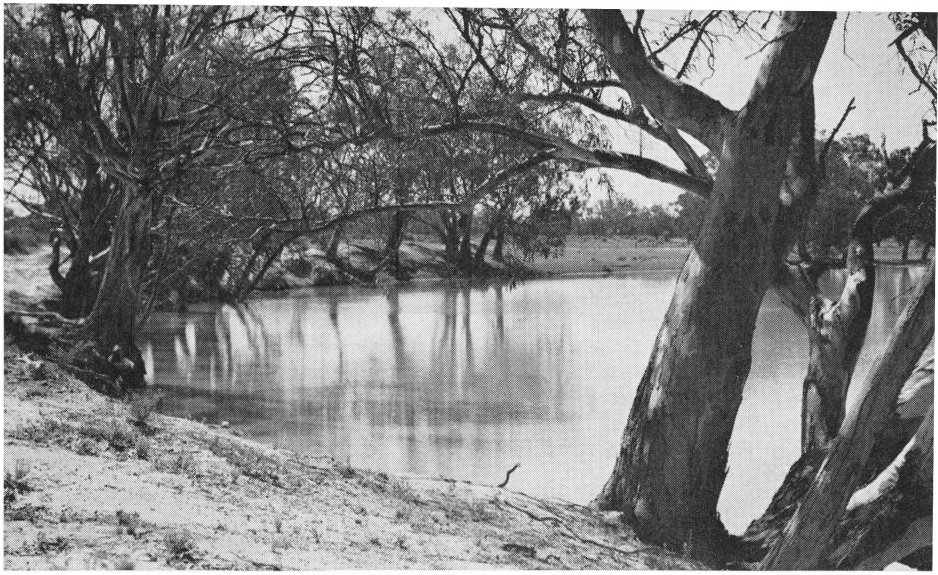
DARCY, LES (1895-1917), was an Australian boxer. Between 1910 and 1916, he won all but 4 of his 50 fights. He was born at Stradbroke, in New South Wales. His full name was JAMES LESLIE DARCY. He won the Australian middleweight title in 1915 and heavyweight title in 1916. He defeated world-ranking boxers such as Jimmy Clabby.

DARGIE, SIR WILLIAM (1912-), an Australian artist known especially for his realistic portraits, won the Archibald Prize for portraits eight times (see ARCHIBALD PRIZE in this volume). The Australian government commissioned him to paint several portraits, including that of Queen Elizabeth II, in 1954. During World War II, Dargie became official war artist with the Australian military forces. He was born in Melbourne. He directed the art school at the National Gallery of Victoria.

DARK, ELEANOR. See LITERATURE OF AUSTRALIA (The Third Period [1920-]) in this volume.

Australian News and Information Bureau

Les Darcy, *right,* won the Australian middleweight title in 1915 and the heavyweight title in 1916. The world middleweight title was in dispute. Darcy won several bouts billed as world middleweight title fights, but these contests did not win universal recognition.



The Darling is Australia's longest river. From its source in the Great Dividing Range, it flows 2,740 kilometres to Wentworth, where it joins the Murray River.

Australian Official Photograph

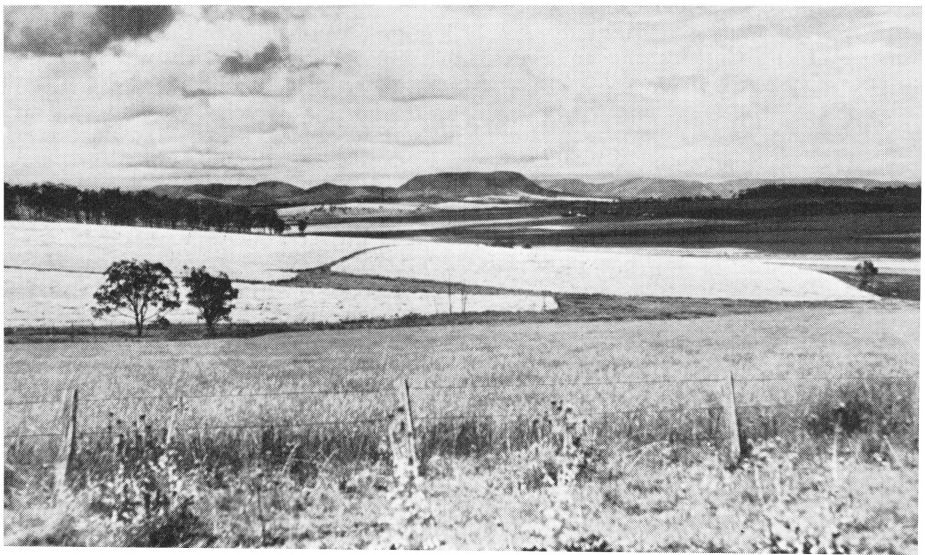
DARLING is Australia's longest river. It is formed by several rivers that rise in the Great Dividing Range and the Darling Downs in Queensland. It flows south-westerly for 2,740 kilometres and joins the Murray at Wentworth, in New South Wales. The Darling and its many tributaries drain an area of more than 647,000 square kilometres in New South Wales and Queensland. During a large part of the year, the Darling is little more than a chain of scattered water-holes. Charles Sturt explored part of the river in 1829 and named it after Sir Ralph Darling, who was then governor of New South Wales.

DARLING, SIR RALPH (1775-1858), was governor of New South Wales from 1825 to 1831. He governed the colony firmly, coming into conflict with men of liberal views, such as William Charles Wentworth (see WENTWORTH, WILLIAM CHARLES, in the other Australasian volume). He helped to establish the legislative council and trial by jury. He also encouraged exploration. But he became unpopular with many settlers when he tried to impose heavy licence fees and duties on newspapers. He arrived in Sydney on Dec. 18, 1825. He proclaimed Van Diemen's Land (now Tasmania) a separate colony. See also HISTORY OF AUSTRALIA in this volume.

DARLING DOWNS, the "granary of Queensland", is a fertile region of tableland situated about 160 kilometres west of Brisbane. It covers 21,200 square kilometres. The Condamine River and its tributaries flow through the region, irrigating lush farm lands. Major products from the Darling Downs include wheat, sorghum, cereals, dairy produce, meat, fruit, and vegetables. The Darling Downs is one of the most densely populated parts of Queensland. More than 100,000 people live in the area. Toowoomba, the largest city, is the commercial and market centre of the region. In 1827, the explorer Allan Cunningham became the first European to visit the Darling Downs. In 1840, the first settlers established sheep stations in the area.

DARLING SCARP is a chain of mountains in Western Australia. It lies east of Perth and runs almost parallel to the west coast. It rises steeply from the coastal plain. Its highest peaks are Mt. Cooke (582 metres) and Mt. Solus (557 metres). Two of its rivers, the Canning and the Helena, supply water for Perth and Fremantle. Parts of the scarp are rich in bauxite deposits. The principal tourist attraction of the scarp is the John Forrest National Park, a sanctuary for plants and animals.

Sydney Morning Herald



The Darling Downs, a region of rich pastures and wheat lands, produces most of Queensland's grain. It is also noted for its cattle, sheep, and horse studs.

DARWIN (pop. 35,281) is the administrative centre of Australia's Northern Territory. It is a small city, but its value to the country cannot be judged merely by its size. Darwin is an important terminus of road, rail, sea, air, and telegraph communications. It has a large military base with airfields and a naval port.

From the early years of aviation, Darwin has been well known as Australia's "front door". The brothers Ross and Keith Smith landed near Darwin on their first flight from Britain to Australia in 1919. Later, other fliers, such as Bert Hinkler, Sir Charles Kingsford Smith, and Amy Johnson, also landed at Darwin.

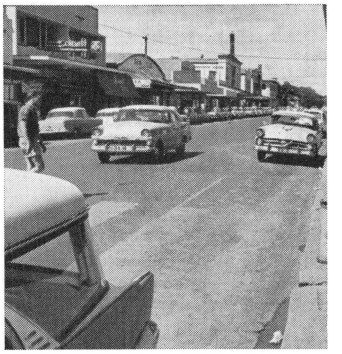
Location, Size, and Description. Darwin stands on the rocky cliffs that form the eastern and southern shores of Port Darwin, a large inlet in Van Diemen Gulf. Modern three- to six-storey buildings have taken the place of most of Darwin's older buildings, dating from the time when it was an untidy frontier town. The town planning board has developed a system of self-contained neighbourhoods, incorporating subdivisions in Port Darwin, Parap, Fannie Bay, Bagot, and Nightcliff.

Darwin has two main seasons: a wet season and a dry season. Its wet season extends from late November to March and its dry season from May to September. The remaining months of October, November, and April are hot, humid, thundery transition periods between the two main seasons. During late December, January, February, and March, Darwin has periods of almost continuous rain caused by moist air-streams coming together over northern Australia from the north and west. The city receives 90 per cent. of its annual rainfall of 864 millimetres (34 inches) during these months. In early May, dry south-easterly winds begin to blow, bringing several months of warm, sunny days.

The People and Their Work. Darwin is probably the most cosmopolitan city in Australia. About 90 out of every 100 of its people are of European stock, but its population also includes people from nearly 30 other racial groups. Most of these people are descended from Aborigines, Filipinos, and Malays, and from Chinese labourers imported in the 1880s to work on the Pine Creek railway. About 900 fullblood Aborigines also live in Darwin.

Darwin's secondary industries include prawn processing factories and an abattoir that sends meat overseas. Buffalo meat is also processed and exported to Asian countries. Darwin manufactures few consumer goods, except beer. Most of its work force of 8,000 is employed in public services, in the defence forces, in professional work, in business, or in the building, transport, and communications industries. The city's economic importance is based on the fact that it is the only port in the Northern Territory at which big ships can dock. It imports general goods and petroleum products, and exports cattle and animal hides. Ships call regularly to load iron ore for Japan from local mines.

Cultural Life. Darwin's primary and secondary schools are run by the federal government. The Adult Education Centre provides special training in a variety of subjects and crafts. A school for Aborigines at Bagot settlement also offers specialized training. Boarding and tutorial colleges have been opened to accommodate and assist children from outback settlements.



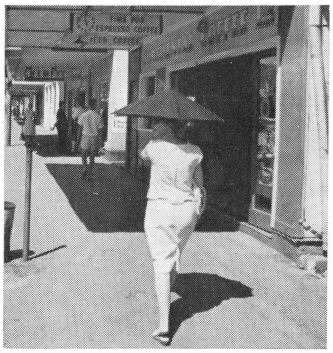
The Tropical Sun beats down on the streets of Darwin. Resourceful people provide their own shade to keep cool in the open.

School-Children in Darwin belong to many racial groups, indicating the cosmopolitan life of the city.

Jeff Carter

Darwin's public library has 25,000 books, and about 2,000 people borrow books regularly. It is operated by the Northern Territory Administration in collaboration with the National Library in Canberra. Educational and documentary films brought from Canberra are shown regularly in Darwin and at outback missions and settlements. Darwin has two radio broadcasting stations, three cinemas, and two television stations. The North Australian Eisteddfod, held in Darwin every July, is a popular festival of music and drama, and is also noted for Aboriginal singing and dancing. Darwin has one newspaper, *The North Territory News,* which is published six days a week.

Transport. The Stuart Highway, sometimes called *The Bitumen,* links Darwin with Alice Springs, almost 1,609 kilometres (1,000 miles) to the south. The Barkly Highway, which runs from the east through Mount Isa and Camooweal, joins the Stuart Highway near Tennant Creek. These highways link Darwin with Australia's chief towns, and are an im-



The Busy Harbour handles most of the exports and imports of the Northern Territory. General goods are imported and iron ore from local mines is exported.

Douglass Baglin

portant factor in its economic development. Public transport in the city is limited to passenger buses and taxis. There are no trams or suburban trains. Half of the people have their own vehicles.

Overseas airlines link Darwin with Auckland, Delhi, London, Paris, and Rome. Australian airlines operate daily interstate services as well as flights to cattle stations, missions, and settlements in the outback. The international airport, 6 kilometres (4 miles) from the city, has one of the longest runways in the Southern Hemisphere. Jumbo jets now call.

Things to See and Do. Darwin's oldest buildings include a Roman Catholic church, St. Mary's Star of the Sea, originally built by Chinese labourers. The church survived Japanese bombing during World War II, but shrapnel pierced a statue of the Virgin Mary. The damaged statue now stands in a new cathedral that has been built alongside the church.

Darwin's botanic gardens feature tropical trees and plants and a sound shell for outdoor performances of music and drama. Many people visit Darwin during its annual festival, which includes an eisteddfod, an agricultural show, rodeos, and water ski-ing pageants.

Government. The voters of Darwin elect a city council, consisting of a mayor and eight aldermen, for three-year periods. The city council is responsible for most of Darwin's municipal services. It constructs and maintains roads and footpaths. It is responsible for street cleaning, mosquito control, and the upkeep of parks, reserves, and playing fields within the city boundary. But the Northern Territory Administration controls such municipal services as water, electricity, and sewerage.

History. The harbour on which Darwin is built was sighted by John Lort Stokes in 1839. He named the place Port Darwin, after his friend and former shipmate Charles Darwin, the noted naturalist. But a settlement was not established on its shores until 1869. Earlier British settlements at Port Essington, Fort Dundas, and Raffles Bay had failed, and, in 1863, South Australia had gained control of the Northern Territory.

In 1868, G. W. Goyder, the surveyor-general of South Australia, led an expedition of 135 men and several women to Port Darwin with the purpose of choosing a site for a settlement. The new settlement was to be a defence fortress and a market for the East, as well as a home for 30,000 people. Goyder reached Port Darwin on Feb. 5, 1869, and established a colony there. At first, the new colony developed rapidly. In 1870, the first poles for the Overland Telegraph line were erected. Later, a post office, a bank, and a church were built. In the 1880s, gold was discovered at Pine Creek. A railway was built to Pine Creek, and thousands of hopeful settlers swarmed into Darwin. But most of them returned south again, disillusioned by failure and hardship.

Goyder named his new town Palmerston, after the British prime minister, Viscount Palmerston. The name fell into disuse because traders continued to use the name Port Darwin. When the Australian federal government assumed control of the Northern Territory in 1911, Darwin became the city's official name. Life in Darwin today has been revolutionized by modern air travel, good highways to the south, and radio communications. The people gained control of local government in 1957.

See also NORTHERN TERRITORY in the other Australasian volume.

DAVEY, THOMAS (1760?-1823), was lieutenant-governor of Van Diemen's Land (now Tasmania) from 1813 to 1817. He was a controversial administrator, and was recalled after settlers complained about his behaviour. But he did much to develop the colony by encouraging farming, improving the port of Hobart, and stimulating public works and buildings. In 1815, he angered Governor Lachlan Macquarie by illegally declaring martial law in the colony, in order to put an end to bushranging. Macquarie gave him a large grant of land as compensation for his recall.

The Mitchell Library

Sir T. W. E. David

The Mitchell Library

Alfred Deakin

DAVID, SIR T. W. E. (1858-1934), author, explorer, and geologist, became famous for his scientific expeditions in Australasia. In 1897, he led a scientific expedition to the Ellice Islands to test a theory about the formation of coral atolls. From 1907 to 1909, he was scientific officer in Sir Ernest Shackleton's expedition and led a party to discover the South Magnetic Pole (see SHACKLETON, SIR ERNEST, in the main volumes). David was born near Cardiff, in Wales, and named TANNANT WILLIAM EDGEWORTH DAVID. From 1891 to 1924, he was professor of geology at the University of Sydney.

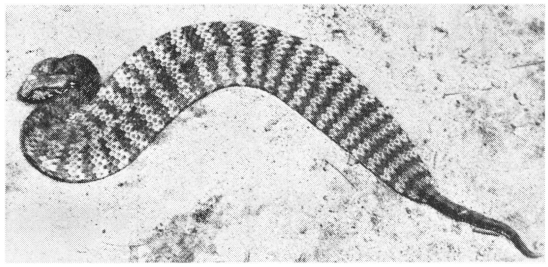
DAVIDSON, ALAN (1929-), one of Australia's finest all-round cricketers, played in 44 test matches. He first played for Australia in 1953. As an accurate, fast, left-arm bowler, he took 186 wickets in test cricket at an average of 20·58 runs. His best bowling performance was 7 wickets for 93 runs against India in 1960. He was also a hard-hitting batsman. Many Australians affectionately refer to him as "Davo." He retired from first class cricket in 1963. He was born at Gosford, in New South Wales, and named ALAN KEITH DAVIDSON. He was educated at Gosford High School.

DAVIS, ARTHUR HOEY. See RUDD, STEELE, in the other Australasian volume.

DAVIS CUP. See TENNIS in the other Australasian volume.

DAVISON, FRANK DALBY (1893-1970), an Australian writer, became known for novels and short stories that reflect his affection for country life and especially for animals. He was born at Glenferrie, in Victoria, and spent many years on country properties in various Australian states.

Davison is best known for his second novel *Man-Shy* (1931), which won the Australian Literature Society Medal. *Man-Shy* is a short novel about a red heifer and its encounters with wild scrub cattle. Critics consider it a classic of its kind. Davison was the first Australian writer to attempt this treatment of an animal subject. He presents the animal as a character in its own right, and allows each event of the plot to be seen through the mind of the animal. There is a clear, detailed account of all incidents, obviously gained from keen observation of the countryside and animal behaviour. *Dusty* (1946) is the story of a half dingo sheep dog that changes from worker to killer, causing its owner's death. It is an understanding portrayal of the animal's reaction to the conflicts of its mixed ancestry and its attitude to this problem. Other works include *Children of the Dark People,* an imaginative tale of Aboriginal children, and *The Wells of Beersheba* (1933), a story of World War I.



Eric Worrell

A Death Adder

DAWE, BRUCE (1930-), an Australian poet, wrote *No Fixed Address* (1961) and *A Need of Similar Name* (1965). Dawe was converted to Roman Catholicism and some of his early verse reflects his religious attitudes. His poetry explores a variety of social issues and their impact on the individual. His unique and original use of the cadences of Australian speech give his work a definite Australian flavour. Bruce Dawe was born at Geelong in Victoria. He left school at 16 and worked at a variety of manual jobs before enlisting in the Royal Australian Air Force.

DAWSON, PETER (1882-1961) an Australian baritone, was featured on some of the earliest recordings. He was born in Adelaide. His first success was in the South Street competition at Ballarat. He studied in Britain. In 1904, he made a recording for Master Records. In 1909, he appeared at the Royal Opera House, Covent Garden, in London.

DEAKIN, ALFRED (1856-1919), an Australian politician and statesman, was prime minister of Australia three times—in 1903 and 1904, from 1905 to 1908, and in 1909 and 1910. Before 1901, he worked hard for federation. As prime minister, he shaped many federal policies on such issues as defence, immigration, and social services.

Deakin was born in Melbourne and educated at Melbourne University. He was a member of the Liberal party. He began his political career in 1880, when he entered the Victorian parliament. He later became solicitor-general. After federation, he was appointed federal attorney-general.

DEASON, JOHN. See WELCOME STRANGER in the other Australasian volume.

DEATH ADDERS are among Australia's most dangerous snakes. They are stout-bodied viper-like snakes with broad heads, small necks, and thin, short tapering tails. Most of them are less than 2 feet long. But they have large fangs and potent venom. Most death adders are grey or brown and have irregular darker cross-bands. They usually spend the day hiding in sand or fallen leaves, coming out to hunt at night. They eat lizards and small mammals. They live in New Guinea and most parts of the Australian mainland except the south-eastern corner.

Scientific Classification. Death adders are in the family *Elapidae*. They are genus *Acanthophis*, species *A. antarcticus*.

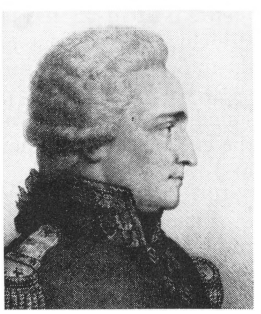
DEFENCE. See ARMED SERVICES OF AUSTRALIA; ARMED SERVICES OF INDONESIA; ARMED SERVICES OF MALAYSIA; ARMED SERVICES OF NEW ZEALAND; and ARMED SERVICES OF SINGAPORE in this volume.

DENILIKOON, an Aborigine, was the man after whom the town of Deniliquin was named. The pioneer businessman Ben Boyd occupied a property in the area in 1845 and named it. Denilikoon had a reputation as a wrestler and boomerang-thrower, and was regarded by Europeans as a king.

DENISON, SIR WILLIAM THOMAS (1804-1871), a British statesman, was lieutenant-governor of Van Diemen's Land (now Tasmania) from 1847 to 1855, and governor of New South Wales from 1855 to 1861. He was often unpopular with the settlers in Van Diemen's Land. He suspended two judges because they disagreed with him over the taxing powers of the Legislative Council. But, in New South Wales, he proved popular. Denison did much to establish representative government, suggested the existing border between Queensland and New South Wales, and drafted a constitution for Norfolk Island. In 1861, he became governor of Madras, in India. He was born in London.

The Mitchell Library

C. J. Dennis



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Bruni D'Entrecasteaux

DENNIS, C. J. (1876-1938), the "Laureate of the Larrikin", was considered one of the most humorous and witty of Australian poets. He was mainly popular for ballads written with great vigour and humour in the larrikin language. The most popular of these ballads were *The Songs of a Sentimental Bloke* (1915) and *The Moods of Ginger Mick* (1916). Dennis also wrote some light-hearted poems for children in *A Book for Kids* (1921).

Dennis has been accused of sloppy sentimentality and of caricaturing the characters of the *larrikins* (young hoodlums) and *diggers* (Australian soldiers) in his verses so that he perpetuated a popular belief that the real Australian of the period acted, thought, and spoke like his characters. But Dennis was a skilled verse-maker. His descriptions are hilarious, his backgrounds are convincing, and his characters, with their racy speech, are endearing. Above all, he had a clever command and control of both the real and his invented Australian slang. The ballad sequence of *The Sentimental Bloke* is a real human story of the Bloke's life. *The Moods of Ginger Mick* is in the same style, and relates the adventures of the Bloke's mate Ginger as a digger.

Dennis wrote a little serious verse which is lyrical and pleasing. The most popular is *The Singing Garden* (1935), a collection of prose and poetry on nature themes. Dennis also wrote some easy satire in his journalistic work and in *The Glugs of Gosh* (1917), a burlesque of middle-class society. But his literary importance lies in his unique larrikin verse. *The Sentimental Bloke* has been the subject of a musical comedy and two films.

He was born at Auburn in South Australia and named CLARENCE MICHAEL JAMES DENNIS.

D'ENTRECASTEAUX, BRUNI (1739-1793), a French navigator, made a detailed survey of much of the Tasmanian coast in 1792. He named D'Entrecasteaux Channel after proving that it separated the main island from Bruni Island, which was later named after him. He visited the island while searching for traces of La Pérouse (see LA PÉROUSE, JEAN FRANÇOIS, in this volume). In 1793, he discovered and named the D'Entrecasteaux Islands off the eastern coast of what is now Papua. He was born at Aix-en-Provence, in France. His full name was ANTOINE RAYMOND JOSEPH DE BRUNI D'ENTRECASTEAUX. He joined the French navy in 1754. He became commander of a French squadron of ships in the East Indies in about 1784.

DEPRESSIONS. See HISTORY OF AUSTRALIA in this volume.

DERBY (pop. 2,521) is the administrative centre for the Kimberley region of Western Australia. It lies on King Sound, 2,400 kilometres (1,500 miles) by road north-east of Perth. Farmers there grow grain sorghum, and the town's large meatworks exports frozen beef. Mineral exploration companies use the town as a base. The Prison Baobab Tree, a hollow tree 16 metres (53 feet) around the base, still stands there. It is believed that prisoners were once held inside the tree overnight. Derby was declared a town in 1883 and named after Lord Derby, then Secretary of State for the Colonies.

DE ROBURT, HAMMER (1923-), became president of the Republic of Nauru after the island became independent in 1968. De Roburt was born on Nauru and educated at Geelong in Victoria. He became a teacher on Nauru. He became leader of the first elected council of Nauru in 1966. He led the negotiations that resulted in independence and Nauruan control over the island's phosphate industry.

DERWENT is a river in Tasmania that flows from Lake St. Clair 195 kilometres (120 miles) to Storm Bay. Hobart lies at the mouth of the river. The main tributaries of the Derwent are the Ouse, Clyde, and Styx. The valley through which the Derwent flows is extremely fertile. Farmers grow hops, apples, pears, and potatoes. The valley is also important for its timber, fishing, and dairy products. Hydro-electric power stations operate at Tarraleah and Tungatinah. The river-mouth provides an excellent deepwater harbour for the city of Hobart. John Bowen founded the first settlement on the river in 1803 (see BOWEN, JOHN, in this volume).

DESERT ROAD stretches from Turangi, near Lake Taupo in the North Island of New Zealand, to Taihape, about 100 kilometres (63 miles) away. It passes between Tongariro National Park and the Kaimanawa Mountains. Heavy snowfalls often make the road impassable in winter. A bleak wilderness, where only stunted grass grows, borders the road.

DESERTS. See AUSTRALIA; AUSTRALIAN DESERT; and GREAT VICTORIA DESERT in the main volumes. See also GIBSON DESERT; GREAT ARTESIAN BASIN; and GREAT SANDY DESERT in this volume; NINETY MILE DESERT; SIMPSON DESERT and STURT DESERT in the other Australasian volume. For location, see AUSTRALIA (colour maps) in this volume.

DE SURVILLE, JEAN FRANÇOIS. See HISTORY OF NEW ZEALAND (The Explorers) in this volume.

DEVIL'S MARBLES are two groups of immense, weathered granite boulders that lie about 105 kilometres (65 miles) south of Tennant Creek, in the Northern Territory. The age of these boulders is not known. They range in size from 0·3 metres (a foot) to 6 metres (20 feet) in diameter. Some of them weigh thousands of tonnes and many are almost perfectly round. Some are isolated, and others are piled in heaps of various sizes. They are spread over several square kilometres.

Various Aboriginal legends are associated with the marbles. For example, they are believed to be eggs laid by the mythical rainbow snake.

DEVITT, JOHN (1937-), an Australian swimmer, was captain of the Australian swimming team for the 1956 Olympic Games, the 1960 Olympic Games, and the 1958 Commonwealth Games. At the Rome Olympics in 1960, he won the 100 metres gold medal. In 1957, he set a world record time of 54·6 seconds for 100 metres. This record stood for five years. Devitt retired in 1964 to work as a swimming coach. He was born in Sydney.

DEVLIN, BRUCE (1937-), an Australian golfer, became famous as an amateur when he was the individual winner in the first Eisenhower Cup at St. Andrews in Scotland, which Australia won in 1958. He won the 1960 Australian Open as an amateur and turned professional in 1961. He won the Wills Masters tournament in Australia in 1962 and again in 1965. After tieing for first in the 1964 Australian Open, he was beaten in the playoff by the American Jack Nicklaus. In 1963, he won the French and New Zealand Open championships. In 1964, he won $US 32,000 in American tournaments and in 1965 he won $US 68,000. In 1966, he won the Carlingford World Championship at Royal Birkdale, England. In 1972, he won over $US 119,000. He was born at Goulburn in New South Wales.

DEVONPORT (pop. 19,761) is a major port and tourist resort in northern Tasmania. The town's harbour at the mouth of the River Mersey is the terminus for the ferry from Melbourne. Factories in Devonport produce dairy products, textiles, timber, processed food, starch, and flour. The area was first settled in 1829. The settlement originally consisted of two townships, Torquay and Formby. In 1890, the two townships joined together.

DIAMANTINA is one of the rivers of the Lake Eyre system in Australia. It rises in Kirby's Range, in central Queensland, and flows about 900 kilometres (560 miles) through gently sloping country before reaching Goyder's Lagoon, in the north-eastern corner of South Australia. It flows only after heavy rainfall in its upper reaches. John McKinlay discovered the river in 1862 and named it Mueller's Creek. In 1866, the explorer William Landsborough renamed it Diamantina.

DIAMONDS are no longer produced commercially in Australia. Rich deposits of small diamonds were discovered in New South Wales near Inverell in 1851, at Bingara in 1872, and at Copeton in 1885. Tin miners continued to find some diamonds at Copeton until production petered out in the 1960s. A gold dredge on the Macquarie River near Wellington also produced some diamonds until it closed in 1958.

DIDJERIDU is a musical instrument that the Aborigines of northern Australia play in their religious ceremonies. Most didjeridus are about 1·5 metres (5 feet) long, but some are 3 to 4·5 metres (10 to 15 feet) long. They are made from straight, hollowed-out pieces of wood, usually eaten up the centre by termites. The Aborigines blow into these wooden pipes to produce a rhythmic booming sound. In north-western Australia, Aborigines place the end of the instrument in a hollow in the ground to add resonance.

DIGGERS were men who flocked to the gold-fields of Victoria, New South Wales, and Western Australia during the 1800s. They were of Canadian, Chinese, American, or European origin. As the gold was worked out in one place, diggers set out to prospect in another. They pioneered many unexplored regions, with little regard for boundaries or known routes. They built towns such as Cairns, in Queensland, and Kalgoorlie, in Western Australia.

During World War I, Australian and New Zealand troops became known as *diggers*. But historians are uncertain whether this usage came directly from the diggers of the gold-fields.

DINGO. See DINGO in the main volumes; DOG-PROOF FENCES in this volume.

DIXON, SIR OWEN (1886-1973), an Australian lawyer, was a justice of the High Court of Australia from 1929 to 1952 and chief justice from 1952 to 1964. He was the Australian minister to Washington during World War II, from 1942 to 1944. In 1950, he served as a special mediator for the United Nations in the Kashmir dispute between India and Pakistan. He was born and educated in Melbourne.

DLP. See POLITICAL PARTIES OF AUSTRALIA (Minor Parties) in the other Australasian volume.

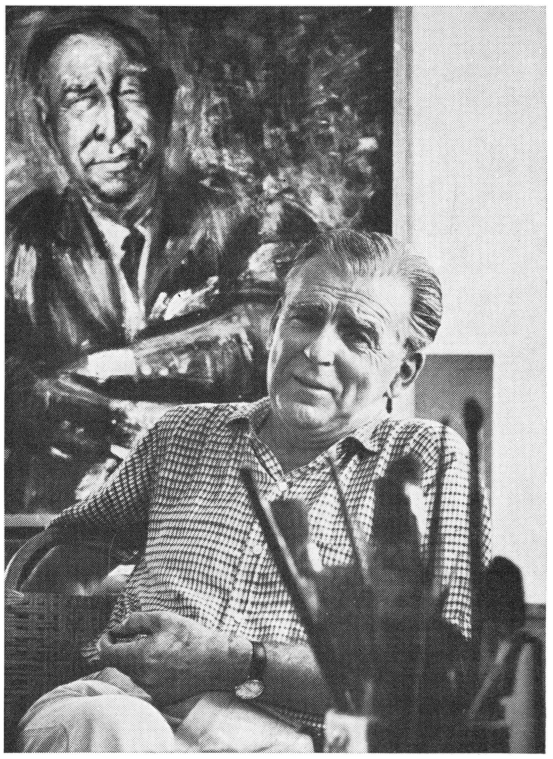
DOBELL, SIR WILLIAM (1899-1970), an Australian painter, became famous mainly for his portraits. He won the Archibald Prize three times—in 1943 (when his portrait of Joshua Smith became the subject of legal action), in 1948, and in 1959. Dobell painted many famous people, including Dame Mary Gilmore and Sir Robert Menzies. Many of his works are in galleries throughout the world, including the Royal Academy in London. He was born at Newcastle, in New South Wales. After studying at Newcastle, he won a scholarship to London. He was knighted in 1966. See also ARCHIBALD PRIZE and ARTS OF AUSTRALIA in this volume.

DOBSON, ROSEMARY (1920-), is a leading Australian poet. Critics praise her sophisticated poetic comment on life and art. A great deal of her poetry has been inspired by works of art. In her first collection *In a Convex Mirror* (1944) there is a completely feminine preoccupation with time. In *The Ship of Ice* (1948), the title poem is really a short verse drama about a ship and crew that are icebound for 37 years. She was born in Sydney and became an art teacher.

DOG ON THE TUCKER BOX is a bronze statue of a dog sitting on a *tucker box* (food box) on the Hume Highway about 8 kilometres (5 miles) from Gundagai, in New South Wales. The townspeople erected the statue in honour of pioneers who developed the area. The statue depicts a faithful dog that guarded its absent master's tucker box. The dog's master never returned, but the dog remained on guard and died still sitting on the box.

William Dobell's Portraits caused controversy in the early 1940s. Later, most Australian critics acclaimed them.

David Moore



DOG-PROOF FENCES have been constructed in southern and eastern Australia to protect sheep from dingoes. A typical fence has wooden or iron posts. They are strung with four plain wires on which strong wire netting is attached to form an effective barrier against dingoes. The individual barriers now join to form a continuous dog-proof fence 8,500 kilometres (5,280 miles) long in Queensland, New South Wales, and South Australia.

DOMETT, ALFRED (1811-1887), a politician and poet, was premier of New Zealand in 1862 and 1863. His government was in power at the height of the Maori Wars. It proposed that Maoris who rebelled against the British authorities, particularly over land disputes, should have their land confiscated. Historians have described Domett as a leader and politician of little ability. His government was defeated the year after its election to power, and Domett became an administrator of Crown lands. In 1872, he published *Ranolf and Amohia,* an epic poem about the Maoris.

DOMINION DAY commemorates Britain's action on Sept. 26, 1907, granting dominion status to New Zealand. Britain formally recognized that New Zealand had achieved full internal self-government. Dominion Day is not widely observed.

DONAHOE, JACK (1806-1830), a bushranger, is known for the exploits recorded in the song "Bold Jack Donahoe" and later incorporated in the ballad "The Wild Colonial Boy". Born in Dublin, he was convicted in 1823 of "intent to commit a felony" and transported for life to Sydney. He worked as an assigned servant and in a road gang. In 1827, with two other men, Donahoe robbed several bullock drays on the Windsor Road. The three men were caught and sentenced to death, but Donahoe escaped. For two years he lived as a bushranger with various gangs around Sydney. Mounted troopers finally shot him dead near Campbelltown.

DOUBTFUL SOUND is one of the largest and most beautiful of the fiords on the western coast of the South Island of New Zealand. A bush track to Doubtful Sound runs from the head of Lake Manapouri over Wilmot Pass to Deep Cove. Doubtful Sound has several spectacular waterfalls.

DOUGLAS, CLIVE (1903-), an Australian composer and conductor, conducted the Tasmanian Symphony Orchestra from 1936 to 1941, the Brisbane Symphony Orchestra from 1941 to 1947, and was associate conductor of the Sydney Symphony Orchestra from 1947 to 1953. He became associate conductor of the Victorian Symphony Orchestra in 1953. He also taught musical composition at Melbourne's University Conservatorium. His compositions include symphonies, operas, song-cycles, and film music. He was born at Rushworth, in Victoria.

DRAMA. See THEATRE in the other Australasian volume.

DREAMTIME. See ABORIGINES (Beliefs) in this volume.

DROUGHTS occur in areas that do not get enough rain. But the definition of a drought depends on how much rain is expected and how long the dry spell lasts. Most regions of Australia can be subject to severe droughts lasting for several months. In New Zealand, an *absolute drought* occurs when an area has no rain for 15 days. A *partial drought* occurs when an area has an average of 0·254 millimetres (0·01 inches) of rain or less for each of 29 days. Droughts also occur in some areas of Indonesia and in certain parts of Malaysia.

Causes of Drought include low rainfall, unreliability of rainfall, and a high evaporation rate. More than a third of the Australian continent receives less than 254 millimetres (10 inches) of rainfall a year. In some of the drier regions, rain may not fall for years. The unreliability of the rain affects almost all of Australia. Farmers can rely on regular rain only in small areas in the south-east and south-west of the continent. Many regions in Australia also suffer from a high rate of evaporation. The continent has few high mountains to force clouds to give up their moisture as rain.

New Zealand is generally well watered. But the eastern regions of the country, particularly in the South Island, are less exposed than the western side. In these regions, the mountains are likely to cause *rain-shadows,* cutting off rain.

Drought Areas. Many desert regions in the centre of Australia experience conditions of permanent drought. Other areas are subject to regular seasonal droughts. But all areas in Australia have experienced fairly severe droughts from time to time. The main drought-stricken areas of Australia include the wheat-sheep belt of northern Victoria and New South Wales; the Merino sheep zone in central Queensland, New South Wales, and South Australia; and many coastal dairy-farming regions, especially in Queensland and New South Wales. Rivers do not relieve the threat of drought greatly in Australia because of the high evaporation rate. Many rivers flow only after heavy rain at their sources.

Drought Control. Severe droughts cause great economic loss, because pastoral, agricultural, and dairying industries are hard hit. National governments usually offer financial assistance to farmers who suffer losses at times of drought. Many new measures for the control of droughts are under consideration. One involves improving transport routes so that farmers can move their stock out of a drought area or bring in relief fodder. Other measures include granting income tax concessions to farmers in order to develop their properties and improve their food-storage facilities; expanding government advisory and research work; and investigating long-range weather forecasting.

The farmers themselves try to improve their properties so that they can better withstand drought. They try to improve the watering facilities of their farms by extending irrigation schemes or drilling for water. They try to extend fencing in order to keep their pastures in better condition. They try to store fodder in good years so that they will have food reserves in drought years. In some more remote areas, farmers plant edible trees, called *top feed.*

Major Droughts in Australia during the years 1864 to 1866, 1880 to 1886, and 1888 and 1889 caused low wheat yields and a great loss of sheep. One of the most widespread and severe droughts in Australian history lasted from 1895 to 1903, when sheep numbers were cut in half and cattle were reduced by a third. Other major droughts occurred between 1911 and 1916, between 1918 and 1920, and between 1939 and 1945. Between 1964 and 1966, another drought caused widespread hardship to farmers.

In New Zealand, the most widespread droughts occur during the summer and autumn seasons. Major droughts occurred in 1907 and 1908, 1916 and 1917, 1927 and 1928, and 1934 and 1935. During a severe drought in 1947, rivers used to provide hydro-electric power dried up.

Related Articles in World Book include:

Main Volumes

Climate | Drought | Erosion | Irrigation

Australasian Volumes

Agriculture
Artesian Water
Bradfield, John Job Crew
Chaffey (family)
Erosion
Irrigation
Reservoirs
Snowy Mountains Scheme

DROVING is driving sheep and cattle over long distances. In Australia, men on horseback brave many dangers to move big *mobs* (herds) of cattle to railways, ports, or meat works. They drive cattle over hundreds of miles of dry country from isolated stations in the Northern Territory, Queensland, and the Kimberley district of Western Australia.

Droving teams and their cooks carry their own supplies and shelter. When they stop at night, the drovers take turns watching the cattle, in case they become frightened or restless and stampede. The teams move their cattle at the rate of about 13 kilometres (8 miles) a day.

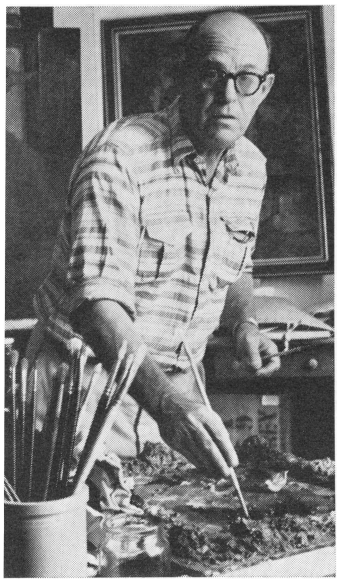
Droving is less dangerous for men and stock than it once was. Water has been provided along the known stock routes. The routes themselves are shorter, because the federal and state governments have expanded the network of roads in the area. But droving is still an occupation for the hardy and courageous, because drovers face the hazards of droughts, floods, sandstorms, and snakebites.

DRUMMOND, STANLEY (1885-1943), a Methodist missionary, gained distinction for his social welfare work, especially for children. He spent many years working in the far western regions of New South Wales and southern Queensland. He became convinced that children living in these regions needed greater medical attention. In 1924, Drummond began taking children from these regions to Manly, in Sydney, for summer holidays by the sea. This scheme led to the establishment of the Drummond Far West Home at Manly, where sick country children receive specialized medical attention. A camp at Manly provides 3 weeks' annual holiday for children between the ages of 10 and 12 years who have never seen the sea and who live more than 480 kilometres (300 miles) from Sydney. Drummond was born at Attunga, in New South Wales.

DRY, SIR RICHARD (1815-1869), was the first locally-born premier of Tasmania. He held this office from 1866 to 1869. Dry was born near Launceston. He was nominated to the Legislative Council in 1844. A strong opponent of the transportation of convicts, Dry resigned over this issue in 1845. He accepted re-appointment to the council in 1847 and served as its speaker from 1851 to 1854.

DRYSDALE, SIR RUSSELL (1912-), an Australian artist, became known for his landscapes. His works are unusually arresting. They do not have the qualities of most traditional landscapes. They are almost surrealistic. Drysdale succeeds in capturing the loneliness and harshness of the Australian countryside. Many galleries in Australia and Britain display his works.

Sir Russell Drysdale
David Moore



Drysdale was born at Bognor Regis, in England, and was named GEORGE RUSSELL DRYSDALE. He studied in Melbourne, London, and Paris. In 1962, Drysdale became a member of the Commonwealth Art Advisory Board.

See also ARTS OF AUSTRALIA (picture) in this volume.

DUBBO (pop. 17,767) is a city in New South Wales, about 420 kilometres (260 miles) north-west of Sydney. The city is the largest country railway centre in the state. It is also a road and air transport centre. The surrounding countryside provides ideal dairying, grazing, and market-gardening land. Secondary industries in the city make bricks and pipes, dairy products, engineering and steel products, flour, joinery, and timber. The city has a stock abattoir. Dubbo was proclaimed a village in 1849, a municipality in 1872, and a city in 1966. In various Aboriginal dialects, the word *dubbo* means *red earth, foggy,* and *head covering.*

DUBOISIAS are small Australian trees that contain poisonous sap. Aborigines are reported to have used the sap as a narcotic and also to drug emus and fish. Two species of duboisia grow only in Australia, and a third is also found in New Caledonia.

Scientific Classification. Duboisias belong to the potato and tomato family, *Solanaceae.* They make up the genus *Duboisia.*

DUFF, ROGER SHEPHERD (1912-), a New Zealand ethnologist and archaeologist, excavated an early Maori site at Wairau Bar, near Blenheim in the South Island. Duff called his find the *moa hunter period* of Maori culture, because excavators found moa bird bones in these sites. Duff was born at Invercargill and educated at Otago and Canterbury universities. He became the director of the Canterbury Museum, in Christchurch, in 1948.

DU FRESNE, MARION (1726-1772), was a French explorer. He was the first European to see and describe the now extinct Tasmanian Aborigines. In March, 1772, he examined the coast of Van Diemen's Land (now Tasmania), while in command of the ships *Mascarin* and *Marquis de Castries.* When he went ashore, he met a group of Tasmanians who appeared friendly, but who later hurled spears at his men. Du Fresne then crossed the Tasman Sea to New Zealand, where he was killed by the Maoris.

DUGITES are large venomous snakes from south-western Australia. They are the most common dangerous snakes around Perth. They are closely related to *brown snakes* of eastern Australia. Dugites grow to about 1·5 metres (5 feet). They are dull greenish-brown, with all-black scales sparsely and irregularly scattered over their backs. Their 20 to 30 eggs hatch in late summer.

Scientific Classification. Dugites belong to the *Elapidae* family. They are species *Demansia affinis.*

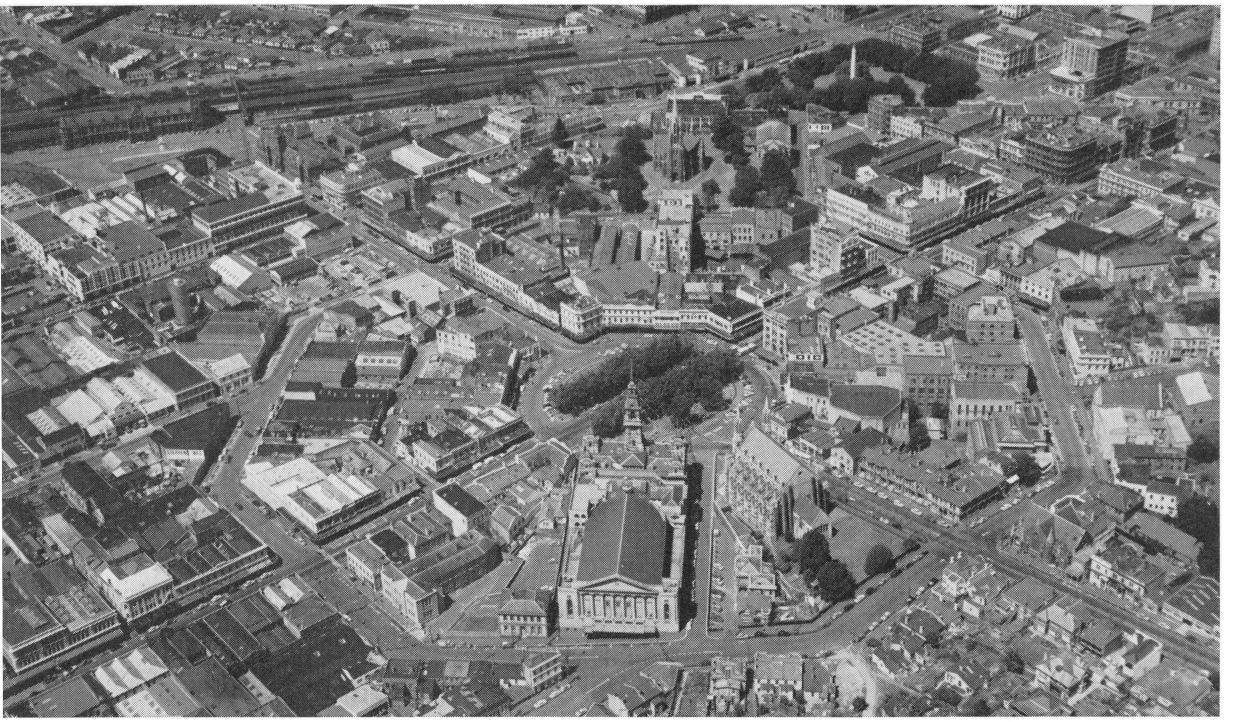
DUIGAN, JOHN (1882-1951), a pioneer Australian aviator, designed and built the first Australian-made aeroplane. He flew it on July 16, 1910, for a distance of 9 metres (28 feet). He made 26 more flights in the aircraft, which was a biplane powered by a 20-horsepower engine built in Melbourne. Duigan was born at Terang, in Victoria, and later trained as a pilot and engineer in London.

DUKUN is the Javanese term for a folk healer or "medicine man". He is an important person in Javanese society, included in all major ceremonies, such as births, deaths, and marriages, and consulted when there are major decisions to be made or when a member of the village is sick. A dukun makes use of magical spells and occasional sorcery, but he also uses primitive "medicine" based on his knowledge of local herbs.

DUMONT D'URVILLE, JULES (1790-1842), a French explorer and naval officer, made several voyages of exploration to Australia and New Zealand. He contributed much to the knowledge of the geography and plant life of both countries. One of his most notable voyages was his visit to New Zealand in 1827, in the warship *Astrolabe,* to explore uncharted parts of the coastline. He charted much of the western coast of the South Island and the eastern coast of the North Island.

DUNBAR, a sailing ship, was wrecked against the rocks on the outer South Head of Sydney Harbour on Aug. 20, 1857. As she sailed northwards in a storm, her captain, James Green, thought she was further south of Sydney than she actually was. He sighted breakers, but had no room to change course, and the ship was dashed broadside against the rocks. Only one of the 122 persons aboard, James Johnson, survived. At an inquest, the captain and officers were cleared of blame.

DUNDAS STRAIT connects the Timor Sea with Van Diemen Gulf between Melville Island and Coburg Peninsula in the Northern Territory of Australia. It is 64 kilometres (40 miles) long and 29 kilometres (18 miles) wide. For location, see AUSTRALIA (colour maps) in this volume.



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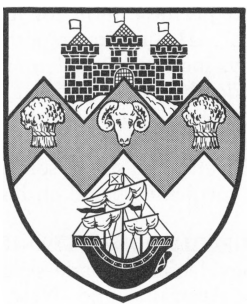


DUNEDIN (pop. 111,059) is the fourth largest city of New Zealand. It is the most southerly of the country's main centres. *Dunedin* is Gaelic for *Edinburgh.*

Location, Size, and Description. Dunedin is located at the head of the Otago harbour on the eastern coast of the South Island of New Zealand. It is 244 kilometres (228 miles) by road south of Christchurch and 145 kilometres (136 miles) from Invercargill. Dunedin and its suburbs cover about 180 square kilometres (69 square miles). Most people live and work within an area of about 44 square kilometres (17 square miles). Most of this land is hilly. But engineers have reclaimed some flat land from the harbour area.

Dunedin's suburbs include Port Chalmers, 14 kilometres (9 miles) to the north-east, Mosgiel, about 16 kilometres (10 miles) to the west, and St. Kilda, a separate borough only 3 kilometres (2 miles) south of the city centre.

The People. A large number of people in Dunedin are of Scottish descent. The Scottish influence is still noticeable. Pipe bands play the bagpipes on most festive occasions. Many Dunedin people still roll the "r" in such words as *Edinburgh,* and use Scottish words such as *wee* (little). Highland dancing and Scottish folk-singing are still popular. The Presbyterian Church is the main religious group.

Cultural Life. The first university in New Zealand, the University of Otago, was established at Dunedin in 1869. In the mid-1960s, it had about 3,500 students. Otago Girls' High School was opened at Dunedin in 1871. Otago Boys' High School is more than 100 years old. Dunedin Technical School, founded in 1889, was the forerunner of the King Edward Technical College. It was the first technical school in New Zealand.

Dunedin's museum has outstanding examples of Maori arts and crafts. The city also has an early settlers' museum. The Dunedin art gallery has an excellent collection of New Zealand paintings and British water-colours. The city has three main libraries—the public library, the University of Otago library, and the Hocken library.

Dramatic and musical groups present plays and concerts at the Dunedin town hall and concert chamber, at His Majesty's Theatre, and at the University Union auditorium.

The city has two newspapers, the *Otago Daily Times* and the *Evening Star.* The New Zealand Broadcasting Corporation operates one television station and three radio stations. A group of amateurs run station 4 XD, the oldest radio station in the Commonwealth of Nations.

Notable buildings include First Church, Knox Church, St. Paul's Anglican Cathedral, St. Joseph's Roman Catholic Cathedral, and Lanarch Castle, a well-known Dunedin home built in the style of a

Dunedin's Main Centre is the Octagon. Streets radiate from this eight-sided centre to the harbour and to the suburbs.

Dunedin has strong links with Scotland. One of the best-known monuments in the city is that of the famous Scottish poet Robert Burns.

castle. Statues of the Scottish poet Robert Burns, of Queen Victoria, and of the first minister of Knox Church, D. M. Stuart, are among the city's monuments. The New Zealand centennial memorial stands on a northern hill. The cenotaph, a memorial to those killed in two world wars, stands in Queen's Gardens, in the central city area.

Recreation. Dunedin is surrounded by a *town belt* of native bush covering about 200 hectares (500 acres). The city has botanic gardens covering 17 hectares (41 acres). Golfers play on the three 18-hole golf courses and several other 9-hole courses near the city. Moana swimming-pool, one of the best in New Zealand, is of Olympic size. The Caledonian ground has an all-weather athletics track. The rugby union and cricket enthusiasts of Otago use Carisbrook ground as their headquarters.

Many people visit the Portobello aquarium, a few kilometres east of the city on the Otago peninsula. Farther along the peninsula is the only albatross colony in the world that is near where people live. People can swim at St. Clair and St. Kilda beaches.

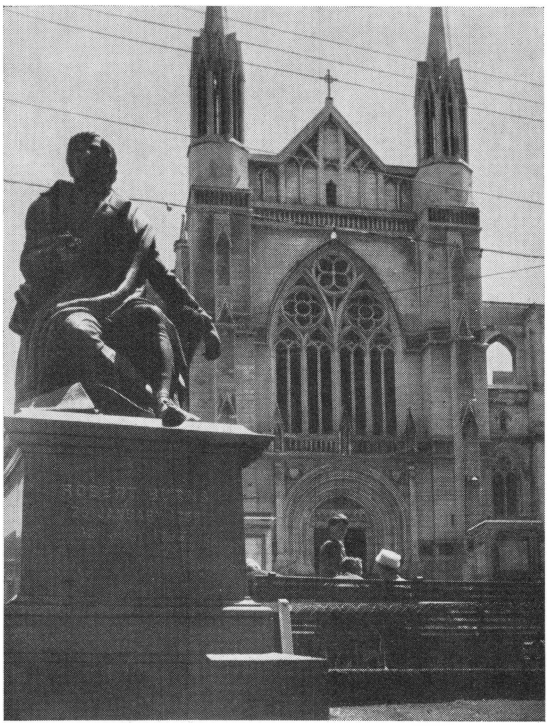
Industry and Trade. Most farmers and fruit-growers in Otago send their products to Dunedin for distribution to other parts of New Zealand and to other countries. Dunedin is the largest centre in the South Island for selling wool. Several large companies with branches throughout New Zealand have their headquarters in Dunedin. Woollen mills are among the city's main industries. Various factories make chemicals, coffee and spices, drugs, electrical appliances, farm implements, furniture, rope, soap, stationery, and sweets and biscuits. Dunedin also has several heavy-engineering factories.

The Port of Otago, which includes Dunedin and Port Chalmers, is mainly an importing port. Exports from the port include wool, and meat from three freezing works—Burnside, Finegand, and Pukeuri. The port handles about 630,000 tonnes (620,000 tons) of cargo each year. More than 640 ships visit the port each year. The largest ships that normally call at New Zealand can berth at Port Chalmers.

Transport. The South Island main trunk railway and the main state highway from Picton to Bluff serve Dunedin. People can travel to Central Otago by road and rail from Dunedin. Suburban railway lines link the city with Port Chalmers and Mosgiel.

Public Services. The Dunedin City Council provides most community services, including gas, electricity, water, and local transport.

Government. The Dunedin City Council is the most important local government body. It spends more than $NZ 10 million a year. The council controls traffic, street works, town planning, reserves, the public library, and the airport. The other major local bodies with headquarters in Dunedin are the Otago Harbour Board, the Otago Hospital Board, and the Otago Catchment Board, which has charge of soil conservation and river control.



Otago Daily Times

History. Few Maoris ever lived in Otago. Before settlers arrived in Dunedin, most of the small Maori population had died of influenza and measles they caught from visiting Europeans. Whaling stations were established near Dunedin during the 1830s. One of the most famous whaling stations was the one at Otakou, near the entrance to the Otago Harbour.

During the 1840s, the leaders of the Free Church of Scotland decided to start a settlement in New Zealand, partly because of the economic depression in Scotland. They planned a settlement based on religious principles. In 1844, Frederick Tucker, a surveyor, journeyed down the coast of the South Island, examining likely places for settlement. He selected the present site of Dunedin.

The first settlers arrived in two ships, the *Phillip Laing* and the *John Wickliffe,* in 1848. The leaders of the settlers were Captain William Cargill (1784-1860) and Thomas Burns (1796-1871). During the next three years, 18 other migrant ships arrived. By 1852, 2,000 settlers lived in Dunedin.

The Otago gold rushes, which began in 1861, laid the basis for the boom period in Dunedin's history. In one 48-hour period, 3,000 miners arrived from Melbourne, in Australia. By September, 1863, the population of Otago had soared to 60,000. Dunedin, which had been the capital of the province since 1852, was proclaimed a city on May 18, 1865. At this time, it was the leading business city of New Zealand. But, by 1900, Dunedin had lost its lead as a business centre.

See also CARGILL, WILLIAM WALTER, in this volume; OTAGO and PORT CHALMERS in the other Australasian volume.

DUNSTAN, DONALD (1927-), an Australian Labor party politician, was premier of South Australia from May, 1967, until his government fell in 1968. In 1970, his party was re-elected with a solid majority with a platform for introducing many reforms and civil liberties. DONALD ALLEN DUNSTAN was born at Suva, in Fiji, and educated at St. Peter's College, Adelaide, and the University of Adelaide. He was elected as a member for Norwood in 1953. As attorney general and minister for Aboriginal affairs from 1965 to 1967, he introduced many anti-racist laws and reformed others.

DUNTROON, in the Australian Capital Territory, is the site of the Royal Military College, which prepares cadets for careers as officers in the Australian regular army. An average of 100 young men each year begin four years of academic and military training at the college, which contains the faculty of military studies of the University of New South Wales. Graduates are commissioned as lieutenants and are awarded degrees in arts, science, or engineering. The college was established in 1911.

DURACK is the name of an Australian family of pastoralists who pioneered cattle country in western Queensland and in the Kimberley district of Western Australia. **Patrick Durack** (1834-1898) and his brother **Michael Durack** (1845-1895) founded Thylungra station on Cooper's Creek in western Queensland. After the droughts of the 1870s, they set out in May, 1883, with other members of the family to drive 8,000 cattle overland to the Ord River, in Western Australia. They arrived 30 months later and opened up new grazing lands. **Michael Patrick Durack** (1865-1950), son of Patrick, was a member of the Legislative Assembly for Kimberley from 1917 to 1924. His two daughters, **Mary Durack** (1913-), a writer, and **Elizabeth Durack** (1916-), an artist, collaborated in producing books on Aboriginal subjects. Mary Durack also wrote *Kings in Grass Castles* (1959), a family history.

D'URVILLE ISLAND lies at the eastern end of Tasman Bay, near the northern coast of the South Island of New Zealand. French Pass, a narrow strait, separates D'Urville Island from the South Island. D'Urville Island is about 29 kilometres (18 miles) long and 8 kilometres (5 miles) wide. It was named after the French explorer Jules Dumont d'Urville who sighted it in 1827.

DUSKY SOUND is the largest and one of the most beautiful of the many sounds in Fiordland, on the south-western coast of the South Island of New Zealand. The sound has several branches and is about 40 kilometres (25 miles) long. Several islands, including Long Island, Anchor Island, and Cooper Island, lie in Dusky Sound. For location, see SOUTHLAND (map) in the other Australasian volume.

The British explorer Captain James Cook was the first European to sight Dusky Sound. He saw it in the evening of March 13, 1770, during his first voyage of exploration. He sailed southwards past the sound, and named it Dusky Bay. In 1773, during his second voyage to New Zealand, he entered the sound and remained there for 46 days. He surveyed and charted most of the sound. George Vancouver, another British explorer, charted the rest in 1791. In 1792, a group of sealers landed on Anchor Island. They were the first Europeans to build a settlement in New Zealand. Dusky Sound became a major centre for sealers and, later, whalers.

DUSUNS are members of a tribal group that make up about a third of the population of Sabah, the Malaysian state in north-eastern Borneo. Many anthropologists classify them as *Dyaks* (see DYAKS in this volume). Dusuns are the largest ethnic group in Sabah. They live mainly in the West Coast Residency, in the mountains and foothills of the Crocker Range and on the plains to the north-west.

Most Dusuns are farmers. They grow rice for food by the *sawah* (wet) system, unlike most Dyaks, who practise shifting cultivation. They also grow tobacco as a cash crop. At one time, they sold rubber collected from wild rubber trees, but this trade has died out. They keep a few animals for food, including cattle, buffaloes, and poultry.

The Dusuns follow a tribal religion that involves *animism* (the belief that every object contains a spirit). Women carry out all religious ceremonies, in which pigs, specially kept for the purpose, play a prominent part. In these ceremonies, the women use a sacred language that the men do not know. The Dusuns living in the coastal regions do not follow closely the traditional ways of life common in the inland regions. Many of them have intermarried with Chinese. Dusuns were once head-hunters.

See also SABAH (The Life of the People) in the other Australasian volume.

DUTCH EAST INDIA COMPANY. See DUTCH EAST INDIA COMPANY in the main volumes; HISTORY OF INDONESIA and HISTORY OF MALAYSIA (The Dutch) in this volume.

DYAKS make up a large number of tribes living in Borneo, mainly in the central part of the island. Anthropologists believe that they are descendants of the first peoples who moved into the Malay Archipelago, probably from India. The people of the Dyak tribes vary in characteristics. Most of them are lighter in skin colour than the Malays, and are short and sturdy, with straight hair, narrow heads, and broad noses. Many have intermarried with Malays in the coastal parts of Borneo. But most of them travelled up the rivers when the Malays settled on the coasts. As a result, Dyaks remain among the most isolated peoples of the archipelago.

The main Dyak tribes in Sabah and Sarawak, in the north, are the *Iban,* or *Sea Dyaks,* and the *Murut.* The main tribes in central Kalimantan (Indonesian Borneo) are the *Bahau, Kayan,* and *Kenya;* in southern and eastern Kalimantan the *Ngaju* and *Ot-Danum;* and in western Kalimantan the *Klemantan.* Members of the *Punan* tribe live as nomads in the interior.

Social Organization. The family is more important than the village in Dyak social life. Dyaks generally marry within their tribe, and most men have only one wife. Dyak women generally have equal status with men. Women may even head some Dyak tribes, such as the Kayan. The Dyaks live in distinctive *longhouses.* They are communal houses built on

poles, in which the living quarters of the families open onto a single gallery. The inhabitants of a longhouse are generally related to each other. Large longhouses may be more than 500 feet long, accommodating 500 people. The Dyaks generally build them near rivers. When the land around the longhouse becomes too poor to farm, the whole group moves to another site and builds a new one.

Ways of Life. Each Dyak tribe has its own language, but some Dyaks use Malay to talk to people of other tribes. Most people in the remote areas wear little clothing, but many wear heavy metal ear-rings that may stretch their ear lobes. Near the coast, many Dyaks wear clothing of brightly woven or printed cloth. Many Dyaks have tattoos.

The Dyaks grow food mainly by the *ladang* (dry and shifting) system of cultivation. Their principal crop is rice. Other crops include maize and cassava. The men hunt animals for meat, and also keep pigs. They catch fish in the rivers. Many Dyaks cut rattan cane in the forests and sell it. Others hunt pythons for their skins, which are valuable.

Most Dyaks follow tribal religions. They worship their ancestors and objects in the natural world (see ANCESTOR WORSHIP in the main volumes). They believe in spirits and magic. The priests, both men and women, interpret good and bad *omens* (signs) that indicate when to carry out such activities as ceremonies and crop-planting. Some Dyaks have become Muslims, but these people generally call themselves Malays and live in villages or towns. Protestant and Roman Catholic missionaries have converted many Dyaks to Christianity.

Dyaks of Borneo include some of the most primitive and isolated people in the world. But the Sea Dyaks of the northern coast have developed advanced arts and crafts.

The Dyaks have elaborate funeral rites. Some time after a person dies, his family holds a *tiwah* celebration. It consists of a large feast attended by the dead person's relatives and friends. His bones are purified and laid in a sacred resting place. Ritual dancing accompanies the celebrations. The dancers may wear masks.

At one time, the Dyaks practised head-hunting. They believed that they would acquire the powers of the person hunted. Head-hunting was also the normal way to settle tribal feuds. The heads were often displayed at feasts and dances. The practice of head-hunting has now died out.

Both the Indonesian and the Malaysian governments are trying to speed the development of the Dyaks, whose backwardness results mainly from isolation. Through educational and economic programmes the governments hope that the Dyaks will be able to play a bigger part in national development. The Indonesian government has established schools in the interior of Kalimantan, and encourages educated Dyaks to enter the civil service. The Malaysian government, through Sarawak's Rubber Planting Scheme, has helped Dyaks to establish smallholdings of rubber. As a result, they can earn a good living and can help Sarawak's economic development.

Arts and Crafts of the Dyaks generally stem from religious beliefs and customs. The Dyaks make beautiful carved shields and demonic masks for the dances they perform on ceremonial occasions. They weave fabrics with beautiful and distinctive geometric patterns. In particular, the Iban Dyaks weave figures of people into these patterns to make intricate designs. The Dyaks are noted for their carved figures of people and animals made in wood and bone.

See also KALIMANTAN (The Life of the People) in this volume; SARAWAK (The Life of the People) in the other Australasian volume.

DYER, BOB (1909-), became one of Australia's most popular radio and television entertainers. He was born in Nashville, Tennessee, in the United States. He began his career in vaudeville and toured the world in a hillbilly comedy and musical act. He first arrived in Australia with the Marcus Review in 1937. After pioneering television in London in 1938 and 1939, he returned to Australia in 1940 for Tivoli Theatres. He married the dancer and photographic fashion model Dorothy (Dolly) Mack. He began his quiz show "Pick-a-Box" on radio in 1941. It later became a popular television programme. During World War II, he toured forward battle areas, entertaining Australian and other allied troops and organizing concert parties. Later, he also became one of the world's best-known big game fishermen.

EAGLE. See WEDGE-TAILED EAGLE in the other Australasian volume.

EARTHQUAKES occur throughout Australasia, excepting certain parts of the interior of the Australian continent and the Sunda shelf, which lies to the north of Java and Sumatra. The Sunda shelf includes most of Kalimantan and the Malay peninsula.

The world's earthquakes can be grouped into two great systems. One, called the *trans-Asiatic belt* or *Alpide belt,* extends from Indonesia through the Himalayas and the Middle East to the Mediterranean. The other, called the *circum-Pacific belt,* almost surrounds the Pacific Ocean. The two systems meet in the Banda Sea area. See EARTHQUAKE in the main volumes.

Australia has no extremely active seismic zones. Small but significant earthquakes occur throughout regions in the east, the centre, and the west of the continent. Most major Australian cities are situated within these regions and the risk of earthquakes warrants consideration in the design and construction of large civil engineering projects.

The eastern region extends from northern Queensland to Tasmania, including Bass Strait. Most earthquakes occur in the eastern highlands and coastal regions and the most active zone is the Gunning-Dalton area about 50 kilometres (31 miles) north of Canberra. The most damaging earthquakes in the eastern region were of magnitude 5·5 and occurred near Gayndah in Queensland in 1935, Robertson in New South Wales in 1961, and Picton in New South Wales in 1973.

The central region extends north through Adelaide to the Simpson Desert. Earthquakes of magnitude 6·5 caused considerable damage at Beachport in 1897 and Adelaide in 1954. The northern part of the region in the Simpson Desert is comparatively active and an earthquake of magnitude 6·5 was recorded there in 1972. But the area is uninhabited and no damage was reported.

The western region comprises several zones each a few hundred kilometres long, in the south-west corner of Western Australia, in the Great Sandy Desert, east of Carnarvon, and off the west coast. The town of Meckering was wrecked in 1968 by an earthquake that caused damage estimated at more than $A 4 million over a wide area including Perth and Kalgoorlie. Previously, the largest recorded shock on the Australian continent was in sparsely inhabited country 560 kilometres (348 miles) south of Carnarvon, Western Australia, in 1941 (magnitude 6·8). A larger shock (magnitude 7·4), on the continental shelf 805 kilometres (500 miles) northwest of Carnarvon, was felt from Albany to Port Hedland.

Papua New Guinea is structurally an extension of the Australian continental mass and the intervening Arafura Sea is extremely shallow. The north coast is the most active part of the continental margin. But the shocks have not been as severe as those recorded in Western and South Australia and volcanoes constitute a greater hazard. See VOLCANOES in the other Australasian volume.

Indonesia consists of a chain of islands with frequent activity along its southern border. To the north, the shocks occur at increasingly great depths up to 644 kilometres (400 miles) beneath the Java and Flores seas. At the eastern end of Indonesia, the two great earthquake belts meet in the structurally complex region extending northwards to the Philippines. All of this area is active. In contrast, Kalimantan and southern Sulawesi are parts of the stable Sunda shelf.

New Zealand is also a country of moderate earthquake activity. Shocks of damaging intensity can be expected about once in 10 years, but only one earthquake, the southern Wairarapa earthquake in 1885, is known to have approached magnitude 8. The total number of deaths in New Zealand earthquakes is about 280. Of these, 250 occurred in the Hawkes Bay earthquake of 1931 and 17 in the Buller earthquake of 1929. Both were magnitude 7¾. Since then the most important shocks have been one near Masterton in 1942 (mag. 7) and another at Inangahua in 1968 which caused 3 deaths.

Seismological Research. The Australian Bureau of Mineral Resources operates a network of stations that records earthquakes in New Guinea; stations on Macquarie and Norfolk Island; and stations at several places on the continent. Four Australian universities also operate stations. Indonesian recording and research is centered in Djakarta. Stations are operated in Java, Sumatra, and Bali. The New Zealand Department of Scientific and Industrial Research's Seismological Observatory in Wellington operates a network of about 30 modern recording stations in the two main islands, and stations more widely spaced from Samoa, Rarotonga, and Fiji to the Antarctic.

See also EARTHQUAKE; SEISMOGRAPH; and SEISMOLOGY in the main volumes.

EAST CAPE is the most easterly part of the North Island of New Zealand. The cape is covered with heavy bush, and East Island lies a short distance off shore. The main coastal road from Hawke Bay to the Bay of Plenty cuts across the corner of the cape. The cape may also be reached by bridle path from Te Araroa. James Cook sighted and named the cape in 1769. For location, see AUCKLAND (province; map) in this volume.

EAST COAST is a region of the North Island of New Zealand that includes the East Cape and Poverty Bay areas. The coast is indented with bays and inlets. The region has a large Maori population, and many of them keep up their traditional customs. The township of Ruatoria is the centre of the Maori farming district. Gisborne is the chief city of the area. There are fine views of the coast from the coastal road linking Gisborne and Whakatane, on the Bay of Plenty. Sir Joseph Banks, the botanist who accompanied James Cook on one of his voyages, landed on the East Coast and made a study of New Zealand's plant life.

EASTER ISLAND, a lonely island in the South Pacific Ocean, lies about 3,860 kilometres (2,400 miles) off the coast of South America. Easter Island is a dependency of Chile. The island has a population of about 1,000. Most of the people speak a Polynesian dialect, as well as Spanish. The island is famous for the large stone statues the local people erected hundreds of years ago.

The Land. Easter Island is almost triangular in shape. It is 19 kilometres (12 miles) long and 8 kilometres (5 miles) wide. The island originated through volcanic activity. There are extinct volcanoes on the island, the highest being Mount Terevaka (427 metres or 1,400 feet above sea level). The coastline is irregular, and sometimes steep. Its rolling slopes are grass-covered. A few trees that have been brought from other regions also grow on the hills.

The mild south-east trade winds blow almost continuously over the island from October to April. But, from May to September, the island often experiences severe storms. There is little change in temperatures during the year. Sea breezes temper even the hottest days, but the nights can be cold. The average annual temperature is about 20° C (68° F). Rainfall is moderate, averaging about 1,370 millimetres (54 inches) a year.

The People and Their Work. The local people are mainly Polynesians, although there has been much intermarriage with Europeans who have lived on the island. Most of the people live in Hangaroa.

There is little industry on Easter Island, because of its isolated position. A government sheep farm provides the local meat supply. The farm exports wool to Chile. The islanders' main occupations are farming and fishing.

Transport and Communications. Regular air services from Tahiti and Chile link Easter Island with the rest of the world.

Social Services. The Easter Islanders are members of the Roman Catholic Church. The Church provides most of the medical and educational services. There is one school on the island. A doctor can go to the island from Chile in emergencies.

Things to See and Do. The stone statues of Easter Island attract many scientists. The statues stand in all parts of the island, especially near the original quarry site on the crater of Rano Raraku. Each statue represents a human figure. The largest one is about 10 metres (33 feet) tall. The smaller ones are 1·5 metres (5 feet) tall.

In addition to the stone statues, there are ancient carvings on rocks and boulders. Scientists have also found specimens of *talking-boards* (wooden tablets inscribed with symbols) on the island. The present inhabitants do not know what the symbols mean, but scientists believe that they were used by the ancient priests as aids to memory in religious rites. These tablets are the only examples of aboriginal writing that have been found in any part of Polynesia. The Chilean government declared Easter Island a historical monument to safeguard its historical treasures.

Government. The Chilean navy administers Easter Island. There is also a locally appointed administrator. The Roman Catholic Church and the elders of the island manage most affairs through a mayor.

History. The earliest inhabitants of the island probably arrived about 2,000 years ago. These people probably travelled from the eastern Polynesian islands. Some scientists believe that they set out from South America. The voyage of the raft *Kon-Tiki* from Peru in 1947 proved that the people could have arrived from South America. The Dutch navigator Jacob Roggeveen was the first European to land on the island. He did so on Easter Day in 1722.

After a bloody battle in 1808, an American seal hunter carried off 22 Easter Islanders. The Americans made them work on the island of Mas Afuera. Similar raids on the island followed. In 1862, a fleet of Peruvian slavers carried off more than 1,000 men and forced them to work on islands off the coast of Peru. After a few months, disease and ill-treatment reduced their number to about 100. After protests from France and Britain, the slave-masters shipped the survivors back to Easter Island. Only 15 of them survived the journey. But there were further outbreaks of violence, and 300 more Easter Islanders were taken to work on plantations in Tahiti. By 1877, the population had dwindled to only 111 people. Chile annexed the island in 1888. The population slowly increased again.

See also EASTER ISLAND in the main volumes; POLYNESIANS in the other Australasian volume.

ECAFE. See INTERNATIONAL CO-OPERATION (The United Nations) in this volume.

ECHIDNA. See ECHIDNA in the main volumes.

ECHUCA (pop. 7,510) is a city on the Murray river in northern Victoria. It is the commercial centre for an extensive agricultural, pastoral, and irrigation area. The main secondary industries in the city process the wheat, rice, citrus fruits, meat, cream, and milk produced by farms in the surrounding districts.

Tourist attractions at Echuca include fishing and water ski-ing on the Murray river. Paddle-steamer trips along the Murray allow visitors to see points of interest in the surrounding area. Echuca is a city of considerable historic interest because it was one of the major inland ports of Victoria during the 1800s. Several colonial buildings, a wharf, a slipway, and the paddle-steamer *Adelaide,* built in Echuca in 1866, still survive. Echuca was founded in 1853 and became a city in 1965.

EDMONDSON, JOHN HURST (1914-1941), an Australian soldier, was awarded the Victoria Cross after his death. It was the first Victoria Cross won by a member of the Australian forces in World War II. In April, 1941, the 9th Australian division was besieged by enemy forces at Tobruk. On the night of April 13, German tanks made a thrust against the area held by the battalion to which Edmondson belonged. In the action that followed, Edmondson, although desperately wounded, engaged the enemy in hand-to-hand fighting; saved his officer's life by bayoneting two Germans; and contributed to the defeat of the enemy attack. Edmondson was born at Wagga Wagga, in New South Wales, and worked on a farm at Liverpool before he joined the army.

Lance Nelson

Government Schools in Australia are now equipped with many modern teaching aids, including television and tape recorders. School-children work together in groups rather than as a whole class.

EDUCATION IN AUSTRALIA, according to the Australian constitution, is the responsibility of the six states of Australia within their own borders. The federal government has similar responsibility in the Australian territories, which include the Australian Capital Territory and the Northern Territory. The federal government has no control over the organization and curricula of schools in the states. But in the 1960s and 1970s it began to extend a major influence in education at all levels throughout Australia. Essentially, this influence was extended by providing grants to enable the states to discharge their responsibilities better.

About 75 out of every 100 Australian children attend government schools. Most of these schools, at both primary and secondary levels, are co-educational. They provide free teaching, but parents have to pay for school books and some other educational materials. Education in government schools is *secular,* which means that teachers are not allowed to give pupils dogmatic religious instruction. Regulations regarding school organization, curriculum, and school facilities are largely determined centrally in each state. The result is that education is similar in both country and city areas.

Non-government schools also have to comply with state regulations regarding such issues as compulsory attendance, teacher qualification, facilities, and curriculum requirements. Most non-government schools are controlled by religious organizations. Church schools combine religious instruction with secular instruction and are staffed by both religious and lay teachers. The Roman Catholic Church has the largest number of such schools, particularly at the elementary level. Independent non-church-affiliated schools have always existed in Australia, particularly at secondary level. In some states parent-co-operative schools have developed in recent years. These schools are organized and run by groups of parents, with the professional assistance of trained teachers and school administrators. Children can change from independent to government schools at any time, but most children who do so make the change at the end of their primary education.

Until the 1960s, non-government schools were essentially self-supporting. But during the 1960s and 1970s, both federal and state funds were increasingly granted to them in order that they could carry out their educational programmes effectively.

Children throughout Australia are expected to begin school by the age of six, but the majority of them start at five, and provision is made for them to do so in all states. Children may leave school at age 15, except in Tasmania, where the compulsory limit extends to 16. There is an increasing tendency for children to remain at school beyond the compulsory limit. As a result, the great majority of children receive seven years of full-time elementary education and three to four years full-time secondary education.

A number of children throughout Australia attend pre-school and child-care centres before the period of compulsory education. At the other end of the

Lance Nelson

Non-Government Schools are run mainly by the Roman Catholic Church and staffed by both religious and lay teachers.

scale, there is a trend for adolescents to remain within the full-time secondary system beyond the period of compulsory education. Many of them then proceed to one or another of the various forms of full-time higher education within universities or colleges of advanced education.

People who enter the work force after their period of compulsory secondary education have the opportunity to undertake a variety of further educational programmes on a part-time basis. Most of these courses are vocational and are offered in technical colleges and other specific job-training institutions. General education and cultural programmes are offered to adults by various formal and informal agencies (see ADULT EDUCATION in this volume).

Voluntary Early Education

Various forms of education and child care are available to children before the commencement of formal schooling.

Until the 1970s, education at this level was available to few Australian children. In general, government finance was limited to grants-in-aid to organizations maintaining pre-school or child-care centres. Private individuals, churches, and other voluntary organizations maintained these institutions. These centres included day nurseries in industrial areas for the children of working mothers. Some provided medical and dental care as well as educational programmes. Teacher education for them was also generally on a non-government basis through institutions such as the Kindergarten Union and the Day Nursery Association. In 1973, the Australian government set up a pre-school committee and a social welfare commission. These groups recommended comprehensive, government-financed programmes of early education and child care. The major emergency provisions of their reports were accepted by both federal and the state governments. Educational authorities expected that programmes of both kinds would be available to all Australian children as soon as sufficient teachers and other personnel had been trained and adequate buildings and facilities were made available. Special programmes of teacher education to achieve this aim began in 1974 with the first major pilot programme at Macquarie University in New South Wales.

Compulsory Education

Infant Classes. Children spend the first two or three years in infants' classes, which are usually staffed by women teachers specially trained to introduce youngsters to school life. Pupils in the infants' classes learn to work and play together and are encouraged to express themselves through various kinds of art work and play-acting. In addition, they acquire elementary skills in reading, writing, and arithmetic.

Primary Classes. At the age of seven or eight, pupils advance to primary classes. In general, primary schoolteachers are responsible for all the subjects taught in a particular grade for a whole year. Primary classes aim to develop children's physical and mental abilities as fully as possible. They provide training in social subjects, develop cultural interests, and provide opportunities for outdoor activities. Subjects taught include arithmetic, reading, writing, natural science, social studies, and the use of spoken English. Physical education and games also play an important part in school life. Children remain in primary classes for four or five years. The Department of Education in each state prepares syllabuses for use in primary schools in the state. They collaborate in this activity with representatives of non-government schools. Teachers' representatives help to devise the syllabuses. Teachers are not obliged to follow them, but the syllabuses provide a basis on which teachers may draw up their own teaching programmes.

State departments began experimenting with new ideas and techniques at this level of education in the 1970s. Curricula, teaching methods, school design, and matters of organization and administration were all subjected to experiment and change. New techniques introduced throughout Australia included *team-teaching* and *open-planning* (see EDUCATION [Elementary Education] in the main volumes). Many schools bought television equipment, tape recorders, and other educational aids. Teachers tried a variety of means of ensuring the individual development of each child. This process was considerably accelerated by the funds made available by the federal government. A special committee set up in 1973 under the chairmanship of Professor Peter Karmel recommended this funding. The money was made available to non-government as well as to government schools,

on the assumption that children should receive an education appropriate to their needs, no matter what school they attended.

Primary and Secondary schooling are separated. The justification for this is, as in most countries, that most children at this age enter the period of adolescence and for this reason they require a different type of educational approach. Movement from primary education to secondary education is automatic and takes place between the ages of 11 and 13. In general, government secondary education tends to be non-selective, neighbourhood-based, and co-educational, and to feature a comprehensive curriculum pattern. Non-government secondary schools are more likely to be single-sexed and selective in terms of wealth or ability or both, and to have residential facilities. In some cases, they cater specifically for the needs of country children.

Secondary Education, First Phase. Secondary education, both government and non-government, takes place in two phases—the compulsory phase and the non-compulsory phase. The first phase lasts for three to four years. For most adolescents, it represents the end of full-time education. First, it is concerned with providing for the continued development of the skills, knowledge, and attitudes considered necessary for personal growth and citizenship in the Australian society. Second, it is directed towards providing a basis for choice of jobs and the knowledge and skills necessary for later specialized vocational training. Third, it seeks to develop certain academic knowledge and skills that will be essential for those students who pursue secondary education beyond the period of compulsory schooling. Throughout Australia, this phase involves a formal programme of student assessment and the granting of certificates. These certificates are proof of the completion of the first phase of secondary education. They provide the qualifications necessary for certain occupations, such as some levels of public service, skilled trades, and also for further full-time or part-time education or job training.

The assessment programme varies from state to state and includes different combinations of internal assessment and state-wide external examinations. In all states except Tasmania, when a child has reached the age of 15, he is free to leave school. For all practical purposes, compulsory education in Australia is completed at the end of phase one or at least during phase one of secondary education. Most children complete phase one of secondary education. Many of them have to stay beyond the minimum leaving age in order to complete their education to this stage.

Secondary education involves different approaches to curriculum and school organization. Generally, children move from specialized teacher to specialized teacher and from group to group for particular purposes. In most states, a core of common subjects are compulsory for all students. For example, English, mathematics, and science are compulsory in most state systems. As the students progress through school, they have an increasing opportunity for individual choice. This choice not only involves subject matter to be studied but also the depth and breadth of treatment. At this stage, new subjects such as foreign languages, woodwork, and home science are introduced. In most states, students are given an increasing opportunity to participate in the administration and day-to-day life of the school as a whole.

Some states provide specialized secondary schools. Secondary schooling in these institutions has a particular emphasis for students with specialized interests. Examples of these are agricultural high schools, home science schools, technical schools, and schools attached to conservatoria of music.

Higher and Further Education

Beyond the first phase of secondary education, students may choose to continue and enter the second phase of secondary education or to leave school and seek work. Some jobs involve them in some form of continued part-time education.

Continued Secondary Education. The second phase of secondary education generally involves a two-year programme of studies of a somewhat more restricted and specialized nature than undertaken earlier. The precise programme varies considerably from state to state and from student to student within each state. For example, some students choose to work in three or four subject areas in considerable depth. Other students may prefer to explore a number of interest areas spread over five or six subjects in a more generalized way. The studies conclude with a formal assessment of performance including, as a rule, a state-wide examination. This assessment is scaled or standardized in such a way as to equate or to take account of the varying patterns of study taken by individual students. The certificate of attainment gained by the student is used by universities and other institutions of higher learning as the basic instrument for deciding on matriculation and selection of students.

Most people who undertake continued secondary education do so as full-time day students. Most students continue on in the same school after completing phase one of secondary education. The proportion of students who choose to continue with full-time secondary education is higher in non-government schools. The higher drop-out rate at the end of phase one of secondary education in government schools is one reason for this difference. Another cause is that a number of students transfer from government to non-government schools. Some students choose to undertake continued secondary education on a part-time basis through technical colleges or other institutions, such as private coaching colleges.

Technical and Further Education is normally conducted on a part-time basis and is divided into three main sectors. The first sector is related to apprenticeship into the various skilled trades. In order to qualify for a certificate of trade competence, apprentices must attend technical colleges for specified periods of time each week. Some classes are held during the day in working hours and apprentices are given time off to attend. Others are conducted in the evening. Entry to this sector normally takes place after the completion of phase one of secondary education.

On the successful completion of apprenticeship

courses, students may enter the second sector of technical education. Emphasis in this sector is on studies leading toward higher certificates and diplomas in various fields of technical competence.

The third sector is concerned with general education in either technical or cultural fields. Some courses offered are preparatory for higher education. For example, many students take courses that lead to gaining matriculation qualifications for universities. Other students take courses to learn specific technical skills, such as home carpentry or home economics. Others take courses in cultural subjects such as Greek, political science, and philosophy.

Concern was expressed during the early 1970s over the limited access to these three sectors. In 1974, the Australian government set up the Kangan committee to advise on the development of technical and further education. This committee recommended the strengthening of technical and further education in both its formal and informal aspects throughout Australia. It stressed the need to provide opportunities for lifelong or continuing education through both government and voluntary bodies. The recommendations called for an increase in the number and types of courses available and for a major improvement in the level of facilities provided.

Higher Education in Australia means the area of education that requires as qualification for entry the successful completion of both phases of secondary education. As a result of a committee report in the early 1960s, colleges of advanced education now exist alongside the universities. They are parallel to the universities but different from them.

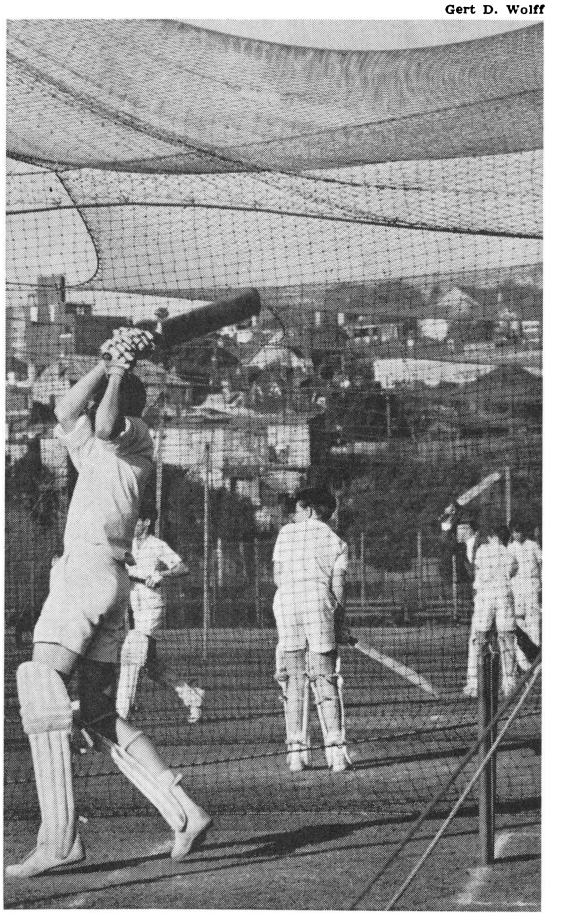
Universities in Australia, in the European and particularly the British tradition, have as their major objectives the discovery and advancement of knowledge, the dissemination of information and ideas, and the preservation of the academic tradition of learning. The universities are concerned with research and with preparing people to enter such learned professions as medicine, architecture, engineering, law, and teaching. Most university courses are full-time and last from three to six years. At the end of these courses, successful students are awarded bachelor's degrees. Some outstanding students remain at university or later return to it for a longer period in order to obtain master's or doctor's degrees.

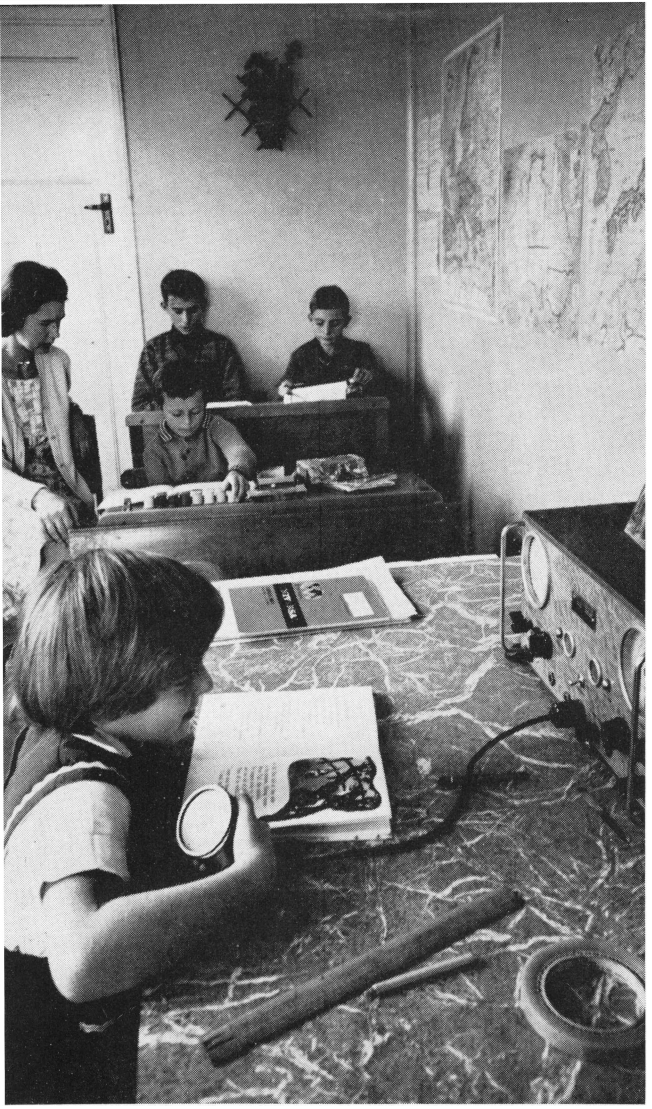
Since World War II, there has been an enormous increase in the number of students attending universities in Australia. In 1946, there were six Australian universities. By the mid-1970s, there were 18, and others were being planned. Student numbers increased even more dramatically, not only at undergraduate but also at postgraduate level. Before the war, it was traditional for students to go overseas, particularly to Britain, for postgraduate degrees. Since the war, there has been a steady increase in the provision of masters' and doctoral programmes in all Australian universities.

There has been a long tradition in Australian universities of providing study opportunities for students who are unable to attend on a full-time basis because of work or other commitments, or who, because they live in a remote area, are unable to attend regular classes and evening classes. Programmes of study for external students are provided by a number of Australian universities. This development was strengthened during the 1970s as a result of the recommendations of a committee set up by the Australian government under the chairmanship of Professor Karmel. This report recommended greatly increased access to higher education both at degree and non-degree levels for part-time and external studies.

Colleges of Advanced Education are primarily concerned with preparing people for entry into particular professions, such as teaching or business administration. To some extent they overlap with universities in this role. But they differ from the universities partly because of the more practical and applied approach they take to professional preparation. Colleges of advanced education also differ from universities because they provide programmes of study in areas of professional preparation not normally given in universities. For example, they offer courses in areas of vocational training, such as nursing, occupational therapy, and speech therapy. The colleges provide for qualifications at both diploma and degree level.

Sport is an important activity in Australian schools. Pupils are also encouraged to follow other non-academic interests.
Gert D. Wolff



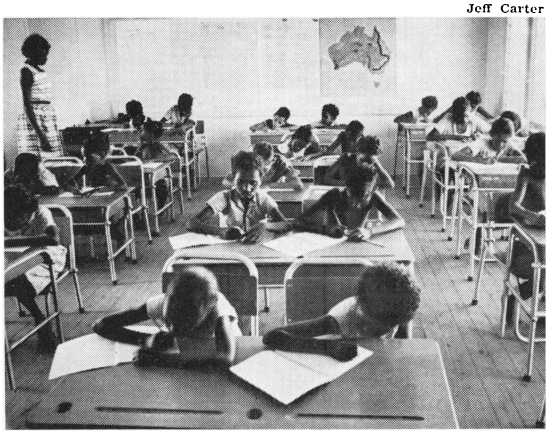


David Moore

In the Outback, some children ride each day to small country schools that provide instruction for pupils of all ages and grades. Other children receive their education at home through radio broadcasts from schools of the air.

In Aboriginal Schools in the Northern Territory, pupils follow a curriculum specially developed to suit their needs.

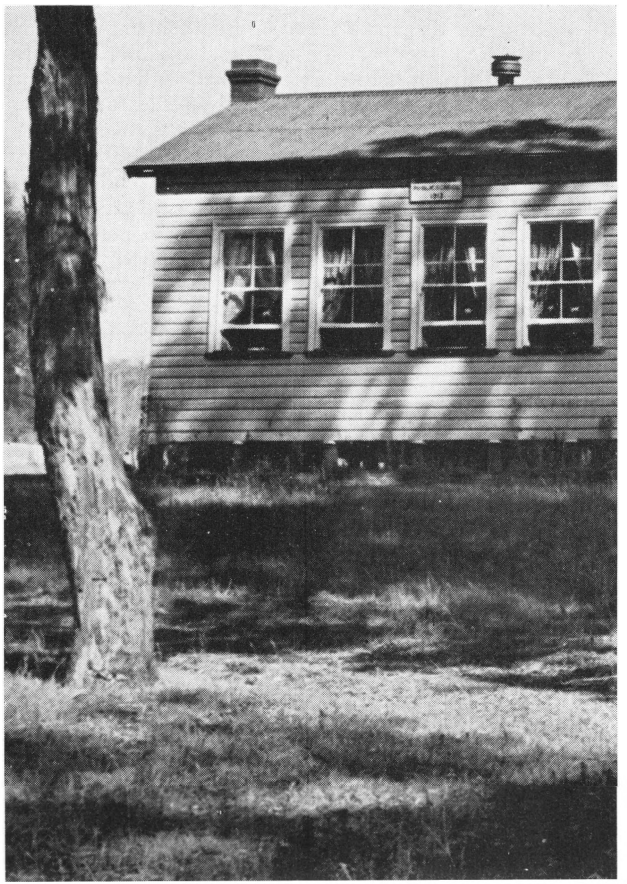
Jeff Carter



Some colleges are prepared to accept students for higher degree work at the master's level. The colleges of advanced education are not generally concerned with providing opportunities for higher level research work either by staff or graduates. They have provided opportunity for acceptable forms of higher education in country areas. By contrast, all universities, except for the James Cook University in Townsville and the University of New England in Armidale, are in large industrial centres. Some colleges of advanced education train people for a number of vocations. Others concentrate on training students for only one vocation, such as teaching. The nature and the scope of courses in colleges vary from state to state and within states from area to area, largely as a result of different historical backgrounds. For example, some long-established teachers' colleges became single-purpose colleges of advanced education. Other newer colleges developed as institutions that offer a wide range of courses and programmes in a variety of vocational and general interest areas. The development of these colleges during the 1970s was even more rapid than that of the universities.

Teacher Education takes place in universities and in colleges of advanced education. In general terms, universities place greater emphasis on programmes of teacher education for secondary schooling. Colleges of advanced education tend to put greater weight on teacher education programmes for early childhood, primary, and junior secondary teaching. In some states, colleges of advanced education provide teacher education programmes for teachers of trade subjects in technical colleges.

Within the universities there are two major patterns



of teacher education. The traditional programme still prevails in most institutions. In it, students take an initial degree followed by a one-year professional course leading to a diploma in education. A two-year course leads to a Bachelor of Education degree. The prospective teacher first studies the subject matter he proposes to teach, without considering teaching methods. He then proceeds to look at ways in which these subjects might best be taught. In the second, newer pattern, the prospective teacher studies academic subjects, and at the same time studies educational principles and practice. The eventual qualification of diploma of education and Bachelor of Arts is obtained over the same period as in the traditional programme. Both types of programmes generally take four years. Most universities provide teachers with the opportunity to take higher degrees in the academic subjects of their speciality. They also offer the opportunity for teachers to take higher degrees in education studies. Short programmes during vacations or at weekends are sometimes offered in order to meet special needs relating to teaching.

Programmes of teacher education in colleges of advanced education are essentially part of the *concurrent pattern,* which combines the study of academic subjects and educational principles and practice. The programme in most colleges of advanced education lasts for three years. Most colleges offer a diploma or certificate in teaching at the end of the course. But some colleges offer four-year programmes leading to a degree in teaching. A few colleges offer higher degrees in teaching at the master's level, following a relevant bachelor's degree obtained from either a university or college.

Like universities, colleges of advanced education offer teachers a range of in-service programmes of varying lengths and intensity.

There are some independent institutions that offer programmes in teacher education, principally for people who will teach in Roman Catholic and other independent schools. In some cases, there are also private institutions that work in the area of early childhood education. Some private teacher education institutions operate in much the same way as single-purpose colleges of advanced education.

Special Services

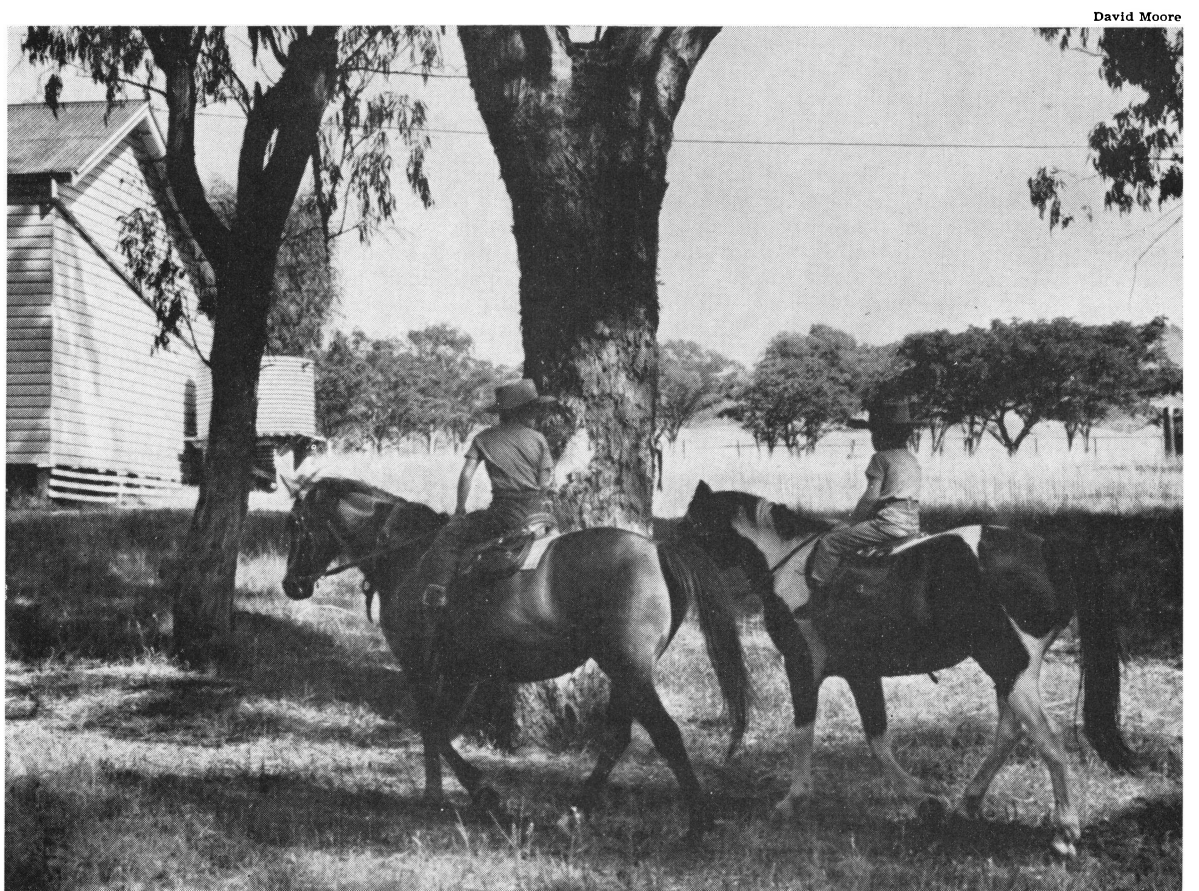
Apart from general provisions for education, there are a wide variety of special services that are offered at both the federal and state levels. These are designed either to provide help in certain areas or to meet the needs of special groups.

Health Services provided by the government are available to children in non-government as well as government schools in most states. Medical officers of the Department of Health visit schools regularly and give the children free medical examinations.

Most states also have guidance clinics staffed by psychiatrists, clinical psychologists, and social workers. These clinics are concerned, among other things, with problems of mental health and adjustment. Children are referred to them by a variety of agencies and by the school counselling service.

Career Guidance. Most states have vocational guidance units that are linked to departments of labour. These units work closely with the schools.

David Moore



Some units provide regular vocational testing and interview services. They also provide detailed information about the nature of occupations, education entry requirements, and job availability.

Service for Aboriginal Children. Aboriginal children in Australia live either in cities and towns, on Aboriginal settlements, or in tribal areas. Aborigines who live in cities and towns attend local government or non-government schools. Special funding is available from the federal government to help parents to support their children's education if the need arises. Most Aboriginal children who live on Aboriginal settlements or in tribal areas are educated in special schools. The federal government established the first four such schools in 1950 and asked education research workers to devise a suitable curriculum for them. Eventually, they developed a special teaching programme to suit the distinctive way of life of the Aboriginal people in that region.

Service for Isolated Children. The scattered nature of the population in inland areas has meant that one-teacher schools remain a feature of Australian education. These schools do not differ from larger schools to any marked extent in curriculum, the quality of teaching, or the general scale of equipment. But they lack the additional facilities and amenities of the larger schools. Many teachers and pupils enjoy the unique pupil-teacher relationships they may develop in small schools.

Most consolidated schools are located in country towns. Educational authorities arrange transport to bring children from outlying areas to the school. For children who live too far away for daily travel, some state educational authorities have established hostels near the schools. Others subsidize private hostels. In addition, some states offer boarding allowances to children who hold scholarships or bursaries.

Some children who live on outback properties receive their education through correspondence courses and schools of the air. Correspondence schools provide the main form of teaching for more than 20,000 Australian children. Schools of the air supplement the tuition given by correspondence schools and make use of two-way radio equipment.

Services for Disadvantaged Children. Children whose parents are economically disadvantaged also received special attention in the report of the Karmel committee in 1973. The report drew attention to the large number of such children in Australia. Most of them live in inner city areas. For historical reasons, schools in the inner city areas of Australia tend to be old. They have fewer physical facilities, including land. Generally they are less well-equipped than schools in suburbs and newer urban areas. The committee recommended that grants be provided to improve such schools, both in the government and in the non-government sector. This recommendation was accepted by the federal government for emergency funding. Similarly disadvantaged schools located in areas other than the inner city also qualified for special funding. The report emphasized providing for the needs of all children, wherever they live and whoever they may be.

Children of non-English-speaking immigrant parents are known to be at a disadvantage when they attend ordinary schools in which the language of instruction is English. These disadvantages are caused by other problems in addition to language. The way of living and behaviour to which they are accustomed may not necessarily be that of the school and of the wider Australian community. Funds were made available in the mid-1970s both by the federal and state governments to provide special educational programmes for these children and their parents. In most cases, these programmes were applied through state departments of education. The earlier emphasis in immigrant education was almost exclusively upon language development. But later it shifted to include more general programmes emphasizing adaption to the school and to the community. Courses on the education of the immigrant are now included in many teacher-education programmes.

Services for Children with Learning Problems. Children with specific learning problems receive special care in all Australian states. There are schools for children who are deaf or partially deaf, blind or partially sighted, crippled or spastic, and mentally or emotionally handicapped. In most cases, state governments and religious and other voluntary organizations work together to provide special facilities for such children. The voluntary organizations usually provide the buildings and the state authorities provide teaching staff and equipment.

In addition, many ordinary government schools conduct special or opportunity classes for children with specific learning problems. For example, there are classes for children who are making slow progress in their schoolwork. There are also classes for bright children, who may also be disadvantaged in classes where a wide range of abilities exist.

Diagnosis and referral of children with specific learning difficulties is normally made by health officers, child guidance clinics, and school counsellors. During the 1970s, federal government funds became available for training teachers in this area at universities and colleges of advanced education. Money was also made available for research into problems and issues associated with the learning needs of children with special difficulties. There is a growing trend in Australia to have these children share the same classrooms and schools with other children wherever possible, and to provide teachers with special advice, facilities, and programmes.

Research Services

There was considerable growth in educational research activities during the 1970s. Government departments at both state and federal level maintain research branches as part of their administrative organizations. In most cases, their studies are concerned with immediate and localized problems relating to curriculum, learning, examining, and planning.

The federal government has made increasingly large sums available for educational research. This money goes to universities and other institutions throughout Australia, through the Australian Research Grants Committee and the Committee on Re-

search and Development in Education. In addition, some specialized units have been established on either a long-term or short-term basis within government departments or on a semi-independent basis in order to conduct research and development studies into particular educational problems. The Australian Science Eucation Project represents an example of this type of development.

The Australian Council of Education Research has its headquarters in Melbourne. The council receives grants from the federal and state governments, and pays for much of its work by selling educational tests and material. It concentrates on research relevant to Australia as a whole and investigates such matters as education and training for agriculture, learning processes, and the improvement of tests and examinations.

Control of Education

The ultimate responsibility for education in Australia lies with the federal and state parliaments, working through ministers of education and their government departments. Certain aspects of the system may be the responsibility of other ministers, such as health, labour, and social welfare. In practice, although education in Australia works essentially within this framework of government legislation, individual educational institutions are controlled by a network of government departments, religious organizations, independent school boards, and, in the case of universities and colleges of advanced education, independent councils or senates. Within this liberal framework, educational systems have been established that vary in detail from state to state but are sufficiently alike to make a general description possible.

Regulations for the operation of such institutions for early childhood education as pre-schools and child care centres are laid down by state departments of education, health, or welfare. Most of these institutions are administered either by groups of parents, by local councils, or by private individuals. But some are under the direct control of government departments.

During the period of compulsory education, about 75 per cent. of children attend schools under the direct control of state departments of education or, in the case of the Australian Capital Territory and the Northern Territory, the Australian government educational authorities. Under each minister of education is a department of education, which forms part of the civil service of each state. A senior civil servant with the title of *director-general of education* is a permanent head of the department of education for each state. He controls several chief inspectors, superintendents, or directors. These officials are in charge of the department's various sub-divisions, including a primary division, a secondary division, and, in all but one state, a technical division. Each head of a sub-division supervises the work of several inspectors who visit schools throughout the state. Most inspectors are former teachers appointed to their position because of their ability to handle various educational problems. The inspectors report on educational standards and judge the ability of individual teachers. One of their most important tasks is to keep themselves and the teachers they supervise up to date with new educational developments. In addition, they have various administrative duties.

In most states, the central department of education controls all government schools and, to some extent, supervises activities in non-government schools. Local government authorities play only a minor part in providing education. Most schools have local committees attached to them. But the committees have only limited powers and privileges. New South Wales and Queensland have introduced some decentralization into their educational systems in the form of regional directorates.

About 25 per cent. of children attend schools other than government schools. Most of these students attend schools conducted by the Roman Catholic Church. Some Catholic schools are administered by a diocesan Catholic education office. The other schools, particularly at the secondary level, are run by one or another of the major Catholic teaching orders. A number of other independent schools provide education on a fee-paying basis. Like the Catholic schools, these institutions tend to follow much the same organizational pattern and curriculum structure as schools in the government system. The majority are under the control of one of the various Protestant churches. But there are also some schools with no religious affiliation. Most independent schools are under the immediate control of a board or council that, depending on the organization, may include both laymen and clergy. Much the same pattern of administration and control applies to those institutions offering continued full-time secondary education after the period of compulsory education.

Various patterns of control and administration exist for the various forms of further education. Technical education for apprenticeship, certificate, and diploma studies is almost exclusively conducted by state government authorities. In all states except New South Wales, technical education is administered through a division of the state department of education. New South Wales has a separate department. Each state administers a network of technical colleges. Each college is run by a principal, who normally maintains a system of industrial advisory boards relating to course planning. There are similar advisory boards at the state level. General education courses offered by technical colleges are also under the control of these institutions and their government departments.

A wide range of general education and other further education courses is provided and controlled by voluntary organizations of varying size and complexity. These groups range from Australia-wide organizations, such as the Workers Educational Association, to small, locally-organized groups offering such courses as creative leisure classes.

Universities and colleges of advanced education are independent bodies governed by councils or senates. A variety of arrangements exist for electing members to such boards. The pattern of membership varies from institution to institution. As a rule, some members are appointed by the government and

others are elected. Typical membership includes parliamentarians; representatives of industry, commerce, and the professions; graduates of the institution; representatives of the teaching staff; and representatives of the student body.

Financing Education

Before the mid-1960s, government schools and other institutions were funded largely from state budgets. The Australian government supplemented this funding by some special funding, particularly at tertiary level. Private institutions, including those operated by the Roman Catholic Church and independent authorities, were funded essentially by endowments and by fees paid by parents. But, during the 1960s, both federal and state governments began to provide funds for non-government schools, both for special purposes, such as libraries and science laboratories, and on a per student basis. After 1972, the Australian government began to provide funds to all schools, both government and non-government. It did so in response to the recommendations of the Karmel Committee, and also utilized special emergency grants recommended by the Pre-Schools Committee and the Kangan Committee.

Early childhood education in Australia has traditionally been funded by parents and local government authorities, supplemented by grants from state authorities, provided certain prerequisites are met. But in the mid-1970s, recommendations were made to the Australian government to provide a comprehensive programme of early childhood education and child-care to be funded largely by its own revenues.

At the compulsory level, the bulk of recurrent costs are met from state government budgets, supplemented, particularly in areas of need, by specific grants from Australian government funds. Similar provisions apply to capital grants, except that these grants are usually met from what is called the *loan fund*. For almost all their capital expenditure in education, as in other areas, state governments co-operate with the Australian government. As a result, they can borrow money to erect new buildings and to provide major equipment.

Both Catholic and non-Catholic independent schools still obtain the majority of their funds from endowments and fees, for both capital and recurrent purposes. But, in addition to state government grants, the non-government schools also receive considerable funding assistance for the erection and maintenance of buildings, for the provision of equipment, and for recurrent expenditure. In the case of Australian government grants, this funding is related to the needs of the specific schools. Relatively poor parochial schools in inner-city or isolated areas are more likely to receive funds than are wealthy, independent schools. Special funds are also made available by the Australian government for such new programmes in education as special courses for the education of immigrants or for children with learning difficulties. Schools in the Australian Capital Territory and the Northern Territory of Australia are entirely funded from Australian government sources.

Technical education used to be funded almost entirely from state government budgets, supplemented in some areas by grants from private industry. But, after the report of the Kangan Committee in 1974, funds became available from Australian government sources for both capital and recurrent expenditure on further education.

Until 1973, universities and colleges of advanced education were funded through a complex arrangement between the federal government and the states. The federal government entered the field during the 1950s and early 1960s, and agreed to provide a proportion of recurrent costs and half the capital costs for the establishment and development of universities. A similar arrangement existed in relation to the colleges of advanced education after their establishment. In 1973, the Australian government accepted additional responsibility. It agreed to provide the total funding of universities and colleges, with the exception of costs provided from endowments, grants for special research purposes, and similar sources.

Funds are also made available to students in the form of scholarships or fellowships. For example, young people wishing to enter the teaching profession can receive relatively generous scholarship allowances from state government funds if they will agree to serve for certain periods in specified areas.

Fees for students attending Australian universities were abolished in 1973. Some students have a living allowance paid to them if they satisfy a means test.

There are also scholarship programmes at the secondary level in both government and non-government schools. Young people with the necessary ability, following assessment, are granted living allowances to enable them to continue secondary education.

Special groups of children, such as Aborigines, are granted specific funding to enable them to continue at school, both during the compulsory age period and beyond it.

In general terms, funding for education in Australia increased generously and dramatically in the 1970s and now amounts to more than 8 per cent. of the gross national product. This figure compares favourably with most countries in the world.

History

In the original penal colony of New South Wales, which embraced eastern Australia, the early governors did what they could to provide schools. These schools were under the supervision of the Anglican chaplains. Some private schools were later established, but these were generally short-lived. As free settlers arrived and the colony developed, churches of various denominations were formed and each developed elementary schools. These schools were subsidized by the government. But the government still had to maintain schools in towns and in the more sparsely settled areas. The result was not only inefficiency, but an interdenominational rivalry that often became bitter. That was the situation when, in the middle of the 1800s, Victoria and Queensland were constituted from parts of the original colony.

Afterwards, the conflicts over state aid to denominational schools followed the same general course

in each state. At first, the colonies tried to rationalize the situation by setting up two boards, one to control the schools maintained by the government, the other to disburse grants to church schools. In the next stage, these boards were replaced by a single board. A single board proved to be no solution. Changes in community thinking about responsibility for education resulted in the passing of certain acts in each of the states, between 1872 and 1895. These acts established statewide systems of public schools, administered by a department of education under the authority of a Minister of the Crown.

The claim that these acts established "free, compulsory, and secular" education was not strictly true. There were small school fees that did not disappear for another 25 years. Compulsory education was not really effective until after 1910. In most states, "secular" meant that the school teaching staffs could deal with only non-controversial scriptural topics, and that local clergy had "right of entry" to schools at agreed times.

The centre of interest in this stage of educational history was provision for an adequate system of elementary education. As the colonies developed, schools of the English *public school* (grammar school) type were established. The purpose and background of these schools was reflected in the announcement of the first, The King's School, Parramatta, 1832. It was to provide "a good classical, scientific and religious education to the sons of parents in the middle and higher ranks of society". The number of such schools increased towards the end of the 1800s and there were further developments in the 1900s. The passing of the principal education act in each state stimulated the development of Roman Catholic schools, both primary and secondary.

For a number of reasons, the development of public secondary education was slow. For example, in 1925 New South Wales was the state with the highest proportion of public secondary schools there; high schools were established under the Act of 1880. But not until 1912, under the leadership of the director, Peter Board, was a viable system of public secondary education established. Since World War II, there have been significant developments at this level in each state, in the number of schools and also in the character of education provided.

By 1900, technical education was established in each state. The major stimulus in this field came first from the industrial demands of World War II, and subsequently from the rapid industrial expansion in many parts of Australia.

The planned preparation of teachers dates from the establishment of Fort Street Model School in Sydney in 1849 and the pioneer work of William Wilkins. As the state systems developed, a teachers' college was set up in each state and the pupil-teacher system disappeared during the early 1900s. In the 1960s and early 1970s, there was a rapid development of teachers' colleges. The federal government gave some assistance and moves were made to extend the minimum period of teacher training to three years.

The first university in Australia was founded in Sydney in 1850. By 1913, a university had been established in each capital city. A major development came after World War II. A national university was founded in Canberra. The Murray Committee Report provided the basis for the expansion of university facilities and for the extension of financial aid from the federal government.

Aids to Learning

Related Articles. See the *Education* section in the separate articles on Australian cities and states, and the following articles in the Australasian volumes:

Aborigines (Welfare Work)
Adult Education
Australian Inland Mission
Australian National University
Australian Universities Commission
Barry, Sir Redmond
Board, Peter
Correspondence Schools
History of Australia
Karmel, Peter
Mackie, Alexander
Rhodes Scholarships
Schonell, Sir Fred
School of the Air
Tate, Frank
Universities
Wyndham Scheme

Outline of this article is as follows:

I. **Voluntary Early Education**
II. **Compulsory Education**
  A. Infant Classes
  B. Primary Classes
  C. Primary and Secondary
  D. Secondary Education, First Phase
III. **Higher and Further Education**
  A. Continued Secondary Education
  B. Technical and Further Education
  C. Higher Education
  D. Universities
  E. Colleges of Advanced Education
  F. Teacher Education
IV. **Special Services**
  A. Health Services
  B. Career Guidance
  C. Service for Aboriginal Children
  D. Service for Isolated Children
  E. Services for Disadvantaged Children
  F. Services for Children with Learning Problems
V. **Research Services**
VI. **Control of Education**
VII. **Financing Education**
VIII. **History**

Books to Read about this topic include:

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EDUCATION IN INDONESIA

EDUCATION IN INDONESIA is based on the *Panca Sila,* the general philosophy of the Indonesian republic (see GOVERNMENT OF INDONESIA in this volume). It aims to produce citizens who are moral and have a sense of responsibility for the development of Indonesian society. After Indonesia proclaimed its independence in 1945, the government asserted that education should serve all the children of all the people. The emphasis should be on "the development of the social and moral character of pupils, and not simply on acquiring book knowledge".

Since 1945, the government has made great efforts to produce a unified system of education, and to make it available to all Indonesian children. But lack of money and a sharp increase in Indonesia's population have slowed progress. The government's attempts to provide enough schools, teachers, textbooks, and other teaching equipment have always lagged far behind the people's needs. As a result, the government cannot enforce compulsory education throughout Indonesia. Education is compulsory only in areas where local people have built their own schools, for which the government provides teachers, textbooks, and equipment.

State schools cannot accommodate all the children who would like to enter them. As a result, the government encourages pupils to attend private schools. Some private schools are conducted by Muslim or Christian religious organizations. Muslim schools are especially important in areas where most people are devout Muslims, as in much of Sumatra, in the coastal areas of Kalimantan, and in several places in Java. Other private schools, such as the *Taman Siswa* schools, have no religious connexions. They were originally founded as places where pupils could study their national culture and heritage.

Indonesia also has some Chinese private schools. In the 1950s and 1960s, the government closed many of these schools because it believed that they hindered the development of a national Indonesian culture. But a few Chinese schools are still open to pupils who are not Indonesian citizens. Similarly, there are a few private schools for the children of people of other nationalities who are living in Indonesia temporarily.

In the early 1960s, there were about 14 million children between the ages of 6 and 12 in Indonesia. About 9 million of them attended state elementary schools, and 90,000 attended private elementary schools. More than 4 million children did not attend schools of any kind. During the same period, state secondary schools provided education for only 30 of every 100 pupils who completed their elementary education. A further 10 of every 100 pupils attended various private secondary schools.

Education in the Government System

For a few Indonesian children, education begins at four or five years of age when they attend state or private kindergartens. For most children, education begins in primary schools at the age of six or eight. After a period of six years at primary schools, some pupils go to junior high schools or lower vocational schools. Two or three years later, successful students progress to senior high schools or higher vocational schools. At 18 or 19 years of age, outstanding students go to universities or other institutions of higher education.

Three Lions

Secondary Schooling is available to only 3 out of every 10 children in Indonesia, and suitable textbooks are scarce.

At each level of education, students have to pass final examinations, known as *state examinations,* before they can progress to the next level. Each province of Indonesia prepares and conducts its own state examinations, but they must conform to standards laid down by the central government's Ministry of Basic Education and Culture in Jakarta. Pupils at private schools can take state examinations.

Basic Schools give Indonesian children a primary education. They are *co-educational* (for both boys and girls), and provide a six-year period of schooling. During the first three years, pupils concentrate on developing skills in reading, writing, and arithmetic. During the last three years, teachers emphasize character-building and general knowledge. Pupils study the Indonesian language, civics, and the history and geography of Indonesia. In addition, they acquire some general knowledge about elementary physics and biology, and are taught singing, handicrafts, and drawing. Teachers also encourage their pupils to cultivate gardens, to learn to save money, to look after their health, and to take part in co-operative projects.

Basic schools meet on six days a week. School starts at 7.30 a.m. and, on five days, ends at 12.30 p.m. On Fridays, schools end at 11 a.m. so that pupils and teachers can join in worship at the mosques. Saturdays are set aside to give pupils an opportunity to pursue their hobbies and develop

their own talents. They enjoy such activities as handicrafts, singing, dancing, and sport under the supervision of their teachers.

Junior High Schools provide a three-year period of education for pupils who have passed a state examination at the end of their primary schooling. The schools are co-educational and continue the kind of instruction that pupils received during their last three years at a basic school. The main subjects taught in junior secondary schools include mathematics, various sciences, arts and crafts, and the language, history, and geography of Indonesia. In addition, pupils study English, social sciences, and world history and geography. Girls attend classes in domestic science. Two periods a week are set aside for sport.

Senior High Schools offer three years of further education to students who obtain good grades in state examinations at the end of their course in a junior secondary school. In the first year at a senior high school, all students take the same subjects. Their course is a more advanced version of the curriculum in junior secondary schools. In the second year, pupils continue with their general education, but, in addition, they begin some special studies.

Students are grouped according to their aptitudes into four sections—the cultural section, the social studies section, the mathematics and physics section, and the science section. Pupils in the cultural and social studies sections specialize in languages, history, and economics. Pupils in the mathematics and science sections take special studies in biology, chemistry, mathematics, and physics.

At the end of three years, students attempt a state examination in the subjects in which they have specialized. If they are successful, they are eligible to enter a university. Most students who do not progress to higher education apply for various clerical or administrative jobs. Senior high schools prepare these pupils for work by offering courses in such subjects as librarianship, secretarial skills, and business management.

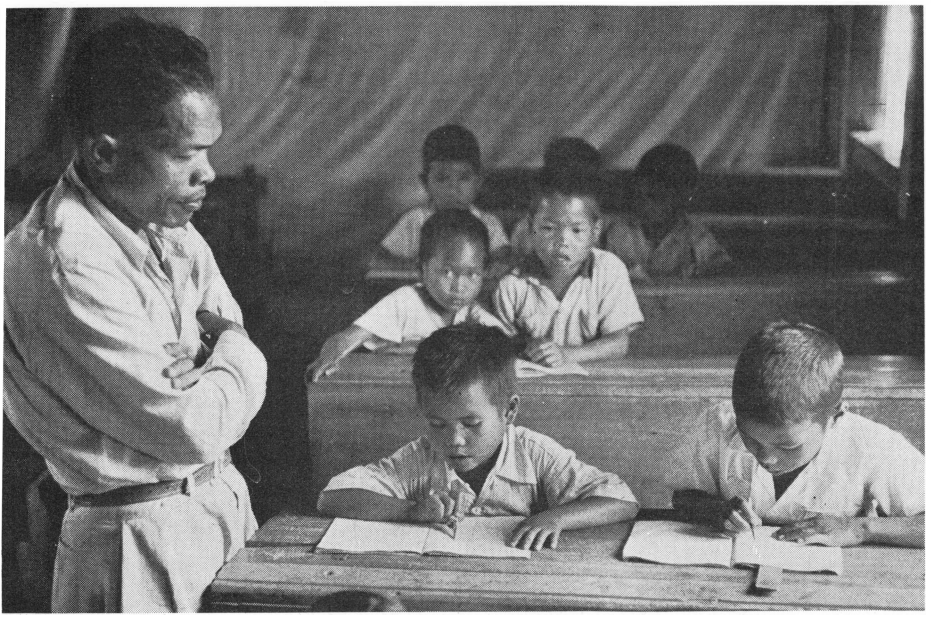
Vocational Schools offer secondary school pupils an alternative form of education. They differ from junior and senior high schools by emphasizing practical knowledge and experience rather than theoretical knowledge. They resemble junior and senior high schools by being divided into two levels. Lower vocational schools are open to pupils who pass the state examination at the end of their course in a basic school. Higher vocational schools are open to pupils who are successful in final state examinations in junior high schools or lower vocational schools.

Indonesia has both lower and higher vocational schools that provide instruction in agriculture, commerce, mining, and textiles, and, for girl pupils, in domestic science and home economics. In addition, some higher vocational schools train junior high school graduates for work as teachers in basic schools and kindergartens.

The Indonesian system of secondary education is flexible. Students can transfer from vocational schools to high schools without too much difficulty. Graduates of higher vocational schools have the same opportunities as graduates of senior high schools to continue their studies at universities. But, in spite of this flexibility, most Indonesian students prefer to go to senior high schools rather than to vocational schools. The Indonesian government tries to encourage more young people to take vocational courses because graduates from vocational schools can play an immediate part in building up the country. It allocates twice as much money to vocational schools as it does to high schools.

Higher Education in Indonesia is provided by a variety of institutions. In addition to universities,

Marc Riboud, Magnum



Primary Schooling is available to 7 out of every 10 children. There is a shortage of qualified teachers.

there are institutes for higher learning, such as the Ambon Technological Institute and the institutes of the Teaching Profession and of Educational Science that give students a five- or six-year period of professional training. Indonesia also has institutes, known as *colleges* or *academies,* that offer three- or four-year courses. Several government departments conduct their own academies to produce highly trained officials. These include a Mining Academy and a Publicity and Information Academy.

The leading institutions for higher education in Indonesia are conducted by the state. They include the University of Indonesia in Jakarta, the Gajah Mada University in Yogyakarta, and the Bandung Institute of Technology. In addition, there are many private institutions. Some are Muslim or Christian religious institutions. Others, such as the 17th August University in Jakarta, base their education on nationalism.

Private universities thrive in Indonesia, mainly because many graduates from senior high schools cannot obtain places in state universities. To enrol in a state university, candidates must pass a screening examination in addition to the final state examination in their senior high school or higher vocational school. Most private universities accept students without any screening examination. Many of them accept students who possess only diplomas issued by private senior high schools. Private universities are not authorized to confer degrees, and their students must pass state university examinations in order to obtain qualifications.

Before 1945, Indonesia had no universities. Today, it has 10 major state universities and 50 state academies. In addition, it has more than 130 private universities and other institutions for higher education. All of them emphasize scientific and technological studies. The government has ensured that every Indonesian university has a faculty of engineering, of medicine, or of physics and mathematics.

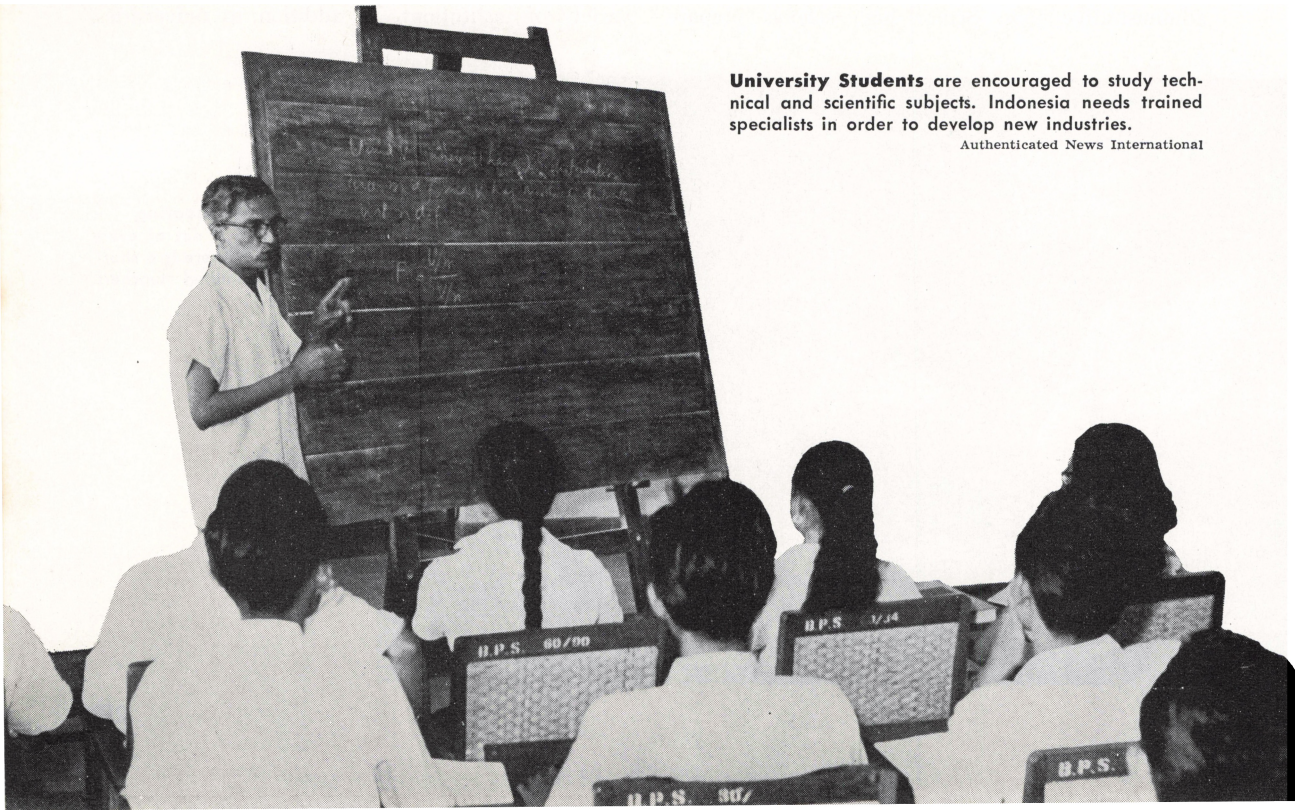
Special Education for handicapped children is the responsibility of the Indonesian government. It has established special schools at Bandung and Jakarta for children who are slow at learning. There are schools for blind children in Bandung, Jakarta, and Wonosobo in central Java, and a school for deaf and dumb children in Bandung. Spastic children attend a centre in Surakarta, in central Java.

Muslim Education

About 80 out of every 100 people in Indonesia are Muslims, and, in the mid-1960s, about 5 million students in Indonesia received their education in Muslim schools and universities.

There are two main kinds of Muslim schools—pesantren and madrasah. In the *pesantren,* pupils receive instruction only in the Koran and in other subjects related to Islam. They live in dormitories attached to the pesantren. Their teachers live in houses nearby. Small villages develop as more and more pupils are attracted to a particular religious teacher noted for his knowledge of Islam and the piety of his life.

The *madrasah* differ from the pesantren by offering pupils a general education in addition to instructing them in Muslim religion, laws, and traditions. The general subjects that pupils study include history, geography, general science, and languages. Pri-



University Students are encouraged to study technical and scientific subjects. Indonesia needs trained specialists in order to develop new industries.
Authenticated News International

vate organizations conduct most pesantren and madrasah. They receive subsidies from a government department, the Ministry of Religious Affairs.

The Ministry of Religious Affairs is also responsible for training religious teachers and for the administration of Muslim universities. Special religious teachers' colleges supply teachers for madrasah and religious teachers for other schools. Muslim universities train religious instructors for Muslim secondary schools and for religious teachers' colleges. They also train officials for various other Muslim institutions throughout Indonesia.

Other Private Education

Indonesia has many other private educational institutions. Some are Christian schools and colleges, conducted by Protestant or Roman Catholic organizations. Others are schools for children who are not Indonesian citizens.

In the mid-1960s, only 1,300,000 of the 2,800,000 Chinese in Indonesia were Indonesian citizens. The rest were citizens of China. Chinese children who are Indonesian citizens must attend ordinary state schools. Chinese children who are citizens of China attend the more than 5,000 special Chinese schools, which are closely supervised by the Indonesian government. The curricula in these schools are similar to the curricula followed by schools in China, but, in addition, pupils have to study the geography, history, and language of Indonesia.

Other schools for children who are not Indonesian citizens include German schools, Indian schools, and the International School of Jakarta, which uses English as the language of instruction.

Control of Education

Government Administration of education is the responsibility of four separate government departments. The *Ministry of Basic Education and Culture* is responsible for the administration of primary and secondary education, and for training teachers for primary schools. In addition, it prepares the curricula for all state basic and secondary schools. The *Ministry of Higher Education and Science* administers and supervises universities and other institutions for higher education. The *Ministry of Religious Affairs* looks after madrasah, religious teachers' colleges, and Muslim universities. The *Ministry of Sport* is in charge of the academies of physical education that train physical education instructors for secondary schools. In addition, many government departments conduct their own academies to supply themselves with qualified officials. Each department conducts its own academy, decides the content of courses, prepares examinations, and confers its own diplomas.

Local government authorities take part in the administration of primary and secondary education, but the Indonesian government retains strong central control. Senior officials of the Ministry of Basic Education and Culture have offices in the capital cities of all Indonesian provinces. Each official is in charge of several school inspectors who supervise and give guidance to teachers in both basic and secondary schools throughout each province.

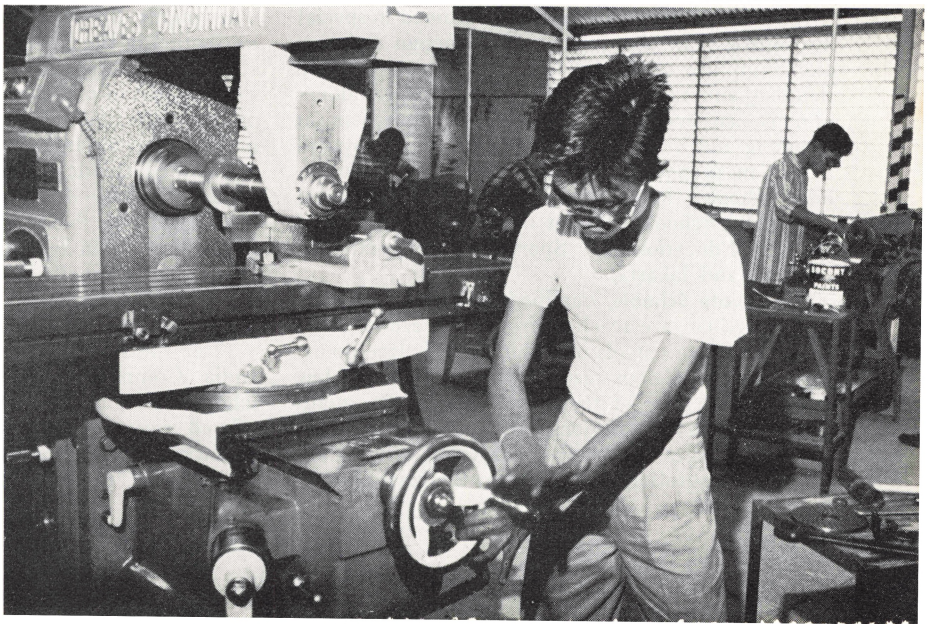
Education is free in basic schools and in state universities. In the mid-1960s, only students at secondary schools still had to pay small fees. The Indonesian government announced that it planned to abolish these fees.

Private Administration. A number of organizations conduct private schools in Indonesia. Most of them follow curricula prepared by the government's Ministry of Basic Education and Culture. Private schools that satisfy government authorities that they are well organized can apply for government subsidies. They receive grants that cover all their running costs.

Muslim private organizations conduct the madrasah schools. They receive full subsidies from the government. The government's Ministry of Religious Affairs helps madrasah to prepare their study-programmes, supplies them with books, and trains teachers for them.

Chinese organizations run Chinese schools in Indonesia. The Indonesian government, through its Bureau of Foreign Education, supervises the activities

Photo Researchers



Craftsmen and Technicians learn and practise many skills in vocational schools and technological institutes.

of Chinese and other foreign schools. Teachers in these schools must pass examinations in the Indonesian language set by the government.

Teachers' Training

For Basic Schools, most teachers are trained for a period of three years after completing their education in a junior high school. In the early 1960s, primary school teachers were scarce in Indonesia. About 4 million children were unable to receive a primary education because the country needed more than 200,000 additional teachers. As a temporary measure, the government established emergency teachers' colleges to provide two years' training for pupils at the end of their period of education in basic schools. But the Indonesian Teachers' Union objected to emergency training schemes and demanded that pupils from basic schools should receive a minimum of six years' training in order to qualify for teaching positions.

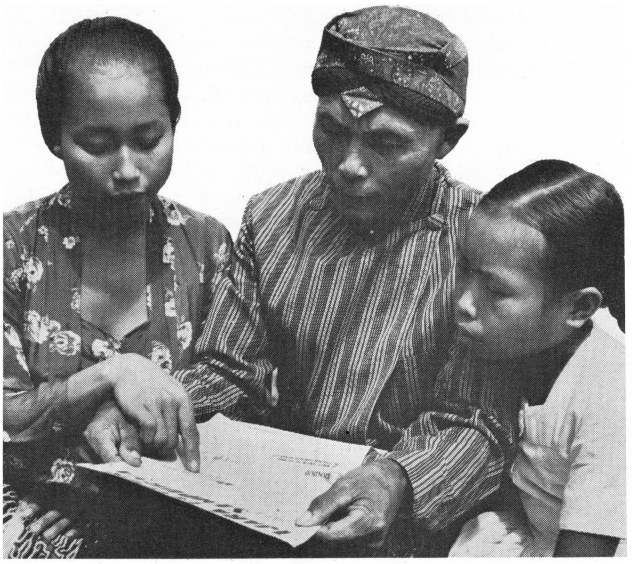
The government tries to improve the standard of teachers who are not fully trained by offering them correspondence courses. They can then study for higher diplomas in education in their spare time.

For Secondary Schools, teachers are trained at several *Institut Keguruan dan Ilmu Pendidikan* (*IKIP;* Institutes of the Teaching Profession and of Educational Science). Students who enter IKIPs must have passed the state examination at the end of their course in a senior high school. The IKIPs provide three years' training for teachers in junior high schools, and five years' training for teachers in senior high schools. They have departments for almost all secondary school subjects.

In the 1950s, many teachers who had been trained for positions in junior high schools moved up to teach in senior high schools. Experienced teachers from basic schools took their places in junior high schools. Other junior high school teachers received only 20 months' emergency training after completing their education in senior high schools. But emergency training courses were unpopular both with students and with the Indonesian Teachers' Union, and, eventually, the government abolished them.

For Special Subjects, teachers are trained in special institutions. The Academy for Indonesian Painting and Sculpture trains art teachers at its centres in Bandung and Yogyakarta. The Academy for Indonesian Dance and Music trains music teachers at Bandung and Surakarta. Several schools of physical education prepare teachers for positions in junior high schools. Teachers of physical education in senior high schools study at the Higher Institute of Physical Education and Sport, which operates in Bandung and Jakarta.

For Private Schools, qualified teachers are scarce. Many of them are teachers from state schools who work in private schools only during their free hours. In most non-religious private schools, there are few teachers and most of them are insufficiently qualified. Christian organizations have their own teachers' training colleges. Teachers for Muslim schools are trained in institutions conducted by the government's Ministry of Religious Affairs. Chinese schools obtain their teachers from China, but the Chinese teachers have to be approved by the Indonesian government.



Authenticated News International

Children Help Older People to learn reading and writing as part of the national campaign against illiteracy.

History

Early Influences. Between the 600s and 1400s, when several Hindu kingdoms flourished in Indonesia, the main aim of education was to serve the Hindu religion. Schools were held at *padepokan,* plain buildings located near Hindu temples. The buildings were general meeting-places where people discussed problems concerning the community and religion, and where young people received religious instruction from the village teacher.

From the 1200s onwards, Islam gradually became the main religion of the people of Indonesia. The Muslim schools were called *pesantren* in Java, and *langgar* or *surau* in other islands. They resembled the Hindu schools in their methods of teaching and in the relationship between the teacher and his pupils. The pupils lived in the pesantren and received instruction in the Koran and in other Muslim books, all of which were written in Arabic. In addition, students had to perform religious duties and say their prayers five times a day. Pesantren remained the main schools for Indonesian children until Indonesia proclaimed its independence in 1945.

Education for the Few. Education in a modern sense began in the 1500s when Portuguese priests opened schools in Indonesia to convert the people to the Roman Catholic faith. Religion was the main subject in their schools, but pupils also learnt reading, writing, and arithmetic.

From the 1600s to the early 1800s, the Dutch East India Company ruled Indonesia. It established schools in regions where it had trading posts, and offered special instruction to Christian Indonesians. It did not establish any schools in regions where the people remained Muslims or continued to follow

other non-Christian religions. The purpose of Dutch education during this period was to convert Indonesians to Christianity and to equip them for work in the offices of the Dutch East India Company. Dutch children were educated in separate company schools.

Colonial Education. In 1799, the Dutch East Indies Government took over control of Indonesia from the Dutch East India Company. At first, it had the same attitude towards education as the company had displayed. Later, it adopted more liberal ideas. In the late 1840s, it set aside funds for the education of Indonesians, and built schools throughout the country. In addition, it assumed responsibility for supervising schools established by Protestant and Roman Catholic missions. But the system of education that the government established still favoured some children at the expense of others. A few Indonesians in large cities could send their children to *first-class schools* that offered a five-year course in reading, writing, arithmetic, geography, history, physics, drawing, and surveying. The children of poorer parents attended *second-class schools* in villages, where their curriculum was limited to reading, writing, and arithmetic. In both kinds of schools, pupils studied all subjects in their local language. Aristocratic Indonesians sent their children to the *Sekolah Raja,* a special school that offered lessons in the Dutch language. Many Indonesians continued to be dissatisfied with the system, because even the first-class schools did not reach as high an educational level as Dutch primary schools.

In 1912, the Dutch authorities decided that the Dutch language should be part of the curriculum in all first-class schools. Two years later, they established advanced primary schools, and, in 1919, they founded a high school that gave Indonesian students a three-year course, preparing them for university entrance. Only a few Indonesian children were able to take advantage of these improvements. Most of them continued to attend village schools, which did not provide tuition in the Dutch language. But, in 1921, the Dutch authorities introduced a new kind of school that formed a link between the village school, where teachers used the local language, and the advanced primary school, where teachers used the Dutch language. In addition, between 1906 and 1935, they opened several technical and other secondary schools in the main cities of Indonesia. Institutions for higher education established during the same period included the Medical Faculty and the Faculty of Law in Jakarta, and the Technical Faculty and the Military Academy at Bandung.

In 1942, Japanese troops occupied Indonesia. The Japanese administration ended the differences between the primary schools and introduced one type of school for all classes of Indonesian society. The Japanese forbade the use of the Dutch language and of Dutch textbooks, and ordered teachers to use the Indonesian language. The Japanese occupation lasted only until 1945, but it prepared the country for an independent system of education by encouraging the use of the Indonesian language at all levels.

National Education. When Indonesia won independence after World War II, its government faced many problems in its efforts to provide education. The main problem was a shortage of teachers at all levels. At the university level, almost all the Dutch professors and lecturers had left the country. Most of the teachers in secondary schools had also been Dutch. The few Indonesian secondary school teachers had to teach in universities, and the best primary school teachers had to move up to teach in secondary schools. The government tried to solve the problem during the 1950s by establishing emergency training institutions for both primary and secondary school teachers. But, in 1962, it abolished all the emergency training courses and introduced longer periods of training.

Another problem was a lack of school buildings and educational materials. Many school buildings were destroyed during the Indonesian Revolution. All textbooks were in the Dutch language. At first, Indonesian education authorities translated existing Dutch textbooks, but they soon began to feel that the content of the books was unsuitable. During the 1950s, they concentrated on producing new books and on rewriting a few suitable old ones.

In 1945, about 90 out of every 100 people in Indonesia were illiterate. By the mid-1960s, most people between 15 and 45 years of age had learnt to read and write. The government organized competitions between villages and paid a reward to every village that freed itself from illiteracy. The main problem remaining was to provide enough reading material for the people in order to prevent them from reverting to illiteracy.

Throughout this period, the outstanding achievements of the government were the rapid expansion of education at all levels, the training of large numbers of teachers, and the reduction of illiteracy. Further progress was hindered by lack of money to build enough schools and supply enough educational materials for the ever-increasing number of children.

Aids to Learning

Related Articles in the Australasian volumes of WORLD BOOK include:

Adult Education
History of Indonesia
Libraries
Religion in Indonesia
Universities

Outline of this article is as follows:

I. **Education in the Government System**
   A. Basic Schools
   B. Junior High Schools
   C. Senior High Schools
   D. Vocational Schools
   E. Higher Education
   F. Special Education
II. **Muslim Education**
III. **Other Private Education**
IV. **Control of Education**
   A. Government Administration
   B. Private Administration
V. **Teachers' Training**
   A. For Basic Schools
   B. For Secondary Schools
   C. For Special Subjects
   D. For Private Schools
VI. **History**

Books to Read about this topic include:

Alisjuhbana, S. T. *Indonesia: Social and Cultural Revolution.* Oxford University Press, 1970.

Growth and Change: Perspectives of Education in Asia (Educational Studies and Documents, New Series, 7). UNESCO, 1972.

Johns, A. H. and Johns, Y. *Indonesia.* Nelson, 1972.

Australian News and Information Bureau

Chinese, Dyak, and Malay Children study together in primary school in Sarawak. English is the main language used for lessons in most schools in Sarawak. But there are also many Malay, Chinese, and Koran schools.

EDUCATION IN MALAYSIA plays an important part in developing a spirit of national unity among the various peoples who live in the country. Before the Federation of Malaya attained independence in 1957, the country had at least three systems of education. Some children attended English-language schools where they learnt more about Britain than about Malaya. Others attended Chinese schools where they studied China's history and culture. Still others attended Malay schools organized by the government. In the late 1950s and early 1960s, the Malayan Ministry of Education revised the curricula of the schools. It introduced a national system of education in which all schools followed similar syllabuses, even though they continued to teach in several languages.

Today, some Malayan primary schools teach in Malay, some in English, some in Chinese, and some in Tamil. Most secondary schools use Malay or English. But some use Chinese and some use Tamil. The official government policy is to make Malay, the national language, the main medium of instruction in all schools in Malaya with English as a compulsory second language. The state governments of Sabah and Sarawak encourage the use of English rather than Malay. They aim to make English the main medium of instruction in their schools, with Malay as the compulsory second language.

Elementary Education

Most Malaysian children begin their education in a primary school at the age of six. A few Malaysian cities have kindergartens for younger children. Primary education is free for children for six years in Malaya. It is available to far fewer children in Sabah and Sarawak because the states do not have enough schools or enough teachers. Teachers and classrooms are also scarce in many towns in Malaya, but education authorities overcome the difficulty by organizing separate shifts in the classrooms. Some children attend school from 7.30 a.m. to 1.00 p.m. Others attend from 1.00 p.m. to 6.30 p.m.

There are two kinds of government primary schools in Malaysia—*national schools* and *national-type schools.* National schools teach in Malay. National-type schools teach in English, Chinese, or Tamil. In a national school and in an English national-type school, pupils study both the Malay and English languages from their first year at school. In a Chinese or Tamil school, children study the Malay language from their first year, and are introduced to the English language in their third year. In other respects, national and national-type schools follow similar curricula. The curricula give most emphasis to reading, writing, arithmetic, general science, and social studies. In addition, pupils have art classes, and enjoy taking part in group activities, such as sports, singing, and play-acting. Head-teachers are allowed some freedom to adapt the standard curricula to suit local needs.

Malaysia has few private primary schools because most parents cannot afford the high fees that the schools charge. Private schools do not receive financial help from the government.

Secondary Education

Most Malaysian children progress to secondary schools at the age of 12. But children from Chinese or Tamil primary schools cannot begin their secondary education until they have spent an extra year in *remove classes,* learning to be fluent in English or Malay.

The Malaysian system of secondary education has three stages. In the first stage, pupils spend three years in lower secondary classes, receiving a general education. In the second stage, they specialize in a

selection of subjects in either an upper secondary school or a vocational school. In the third stage, pupils who possess outstanding academic ability spend two years in a sixth form preparing to enter a university.

Malaysia has a wide range of secondary schools offering academic, technical, or vocational forms of education. Once a pupil has entered one kind of school, he cannot easily transfer to another. But, in the mid-1960s, Malaysian educational authorities began experimenting with a system of comprehensive education that would allow pupils to change courses more freely.

Lower Secondary Classes give pupils the same kind of education as primary schools, but at a more advanced level. In addition, they teach pupils a wider range of subjects. In Malaysia, the official school-leaving age is 15, and all primary school pupils must complete three years of secondary education. At the end of this period, they take an examination, the Lower Certificate of Education (LCE).

Some pupils leave school after the examination. For the rest of the pupils, their performance in the examination determines the kind of further secondary education that they receive. Some of them enter teachers' training colleges, some enter upper secondary schools, and some proceed to vocational schools.

Upper Secondary Schools provide education for the top 30 out of every 100 pupils who attempt the LCE examination. Most upper secondary schools offer an academic type of curriculum. Their pupils study such subjects as mathematics, science, geography, history, and the languages and literatures of other countries. Some upper secondary schools offer a more technical type of education. They specialize in agricultural, engineering, or commercial studies. After a two-year course, pupils in English-language upper secondary schools take the Cambridge School Certificate Examination. Pupils in Malay schools take the examination for the Federation of Malaysia Certificate of Education. The two examinations are of a similar standard.

Vocational Schools provide trade training for children whose results in the LCE examination indicate that their abilities may be more practical than academic. They offer courses in home science for girls, and in agriculture, engineering, building, and commerce for boys. At the end of their courses, pupils leave school and enter employment.

Sixth Forms give an academic education to students who achieve good results in the School Certificate examination. In a sixth form, students specialize either in arts or in science subjects. After two years' intensive study, they take an examination for either the Cambridge Higher School Certificate or the Malay Higher School Certificate. A good pass in either of these examinations qualifies a student to enter a university.

Private Secondary Schools are organized by some Chinese communities in Malaysia. In the early 1960s, the government of Malaysia refused to continue giving financial aid to Chinese secondary schools unless they adopted English or Malay as their main language of instruction. Many Chinese schools complied with the government's ruling. Others chose to continue teaching in Chinese and became independent private schools.

Higher Education

About 10 out of every 100 secondary school children in Malaysia receive a higher education. Some attend the University of Malaya in Kuala Lumpur and some are enrolled at the University of Singapore.

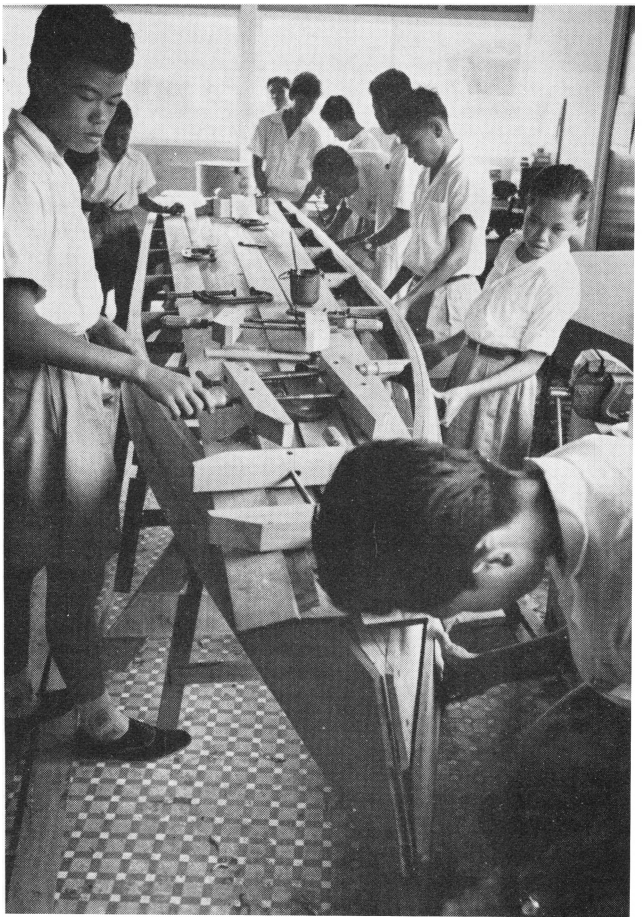
Other institutions of higher education in Malaysia include the National University, the University of Penang, Tunku Rahman College, the Federal Technical College in Kuala Lumpur, and the Agricultural College in Serdang. The government's policy is to introduce Malay gradually as the medium of instruction even for higher education.

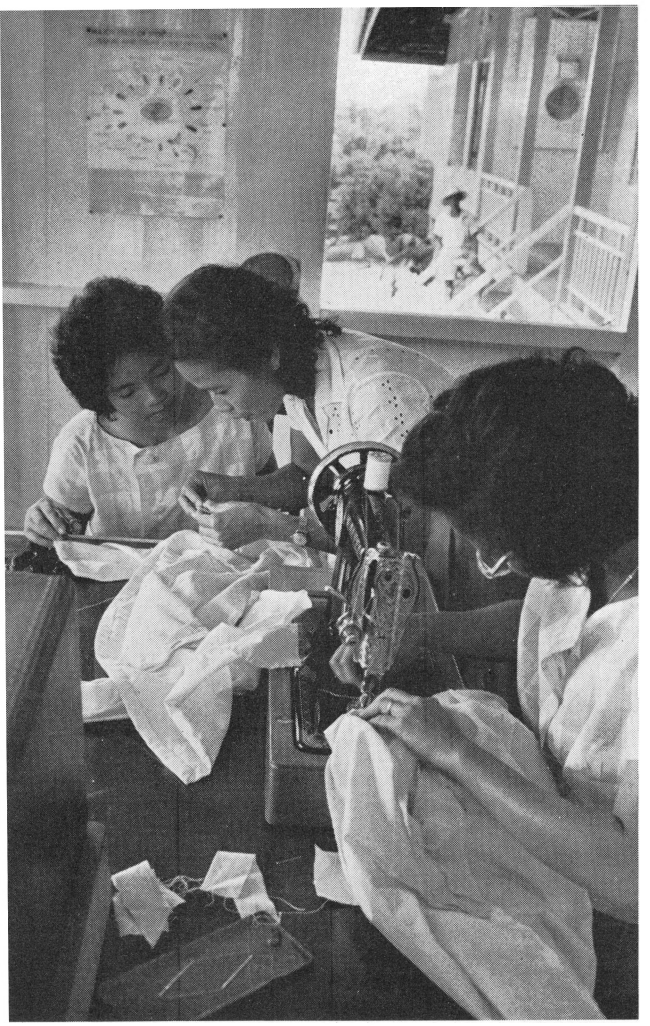
Special Education

For Children in Rural Areas, the government has established small schools in which only one or two teachers look after a small number of children. The schools provide a lower primary education, and have a flexible timetable and curriculum in order to meet the needs of a wide range of pupils who come from widely scattered areas. In some parts of

Boys with Technical Interests attend vocational schools in Malaysia. Boat-building is a traditional Malay craft.

Brian Brake, Magnum





Brian Brake, Magnum

Teachers of Home Science receive special training during a two-year course in a residential teachers' college.

Malaysia, schools with boarding facilities provide higher primary education for all the children in a particular region. Rural secondary schools offer children an ordinary secondary education, but with an emphasis on agricultural studies.

For Malayan Aboriginal Children, the government provides special educational facilities. The Department of Aborigines works closely with the Ministry of Education in organizing aboriginal schools. The schools follow much the same curricula as other government schools, but they have to overcome serious language difficulties. Most Malayan aborigines speak languages that are quite different from Malay. See MALAYAN ABORIGINES in the other Australasian volume.

For Handicapped Children, Malaysia has a variety of special schools. They provide care for deaf, blind, spastic, and mentally handicapped children. One Malaysian teachers' college organizes special courses to train teachers for work in these schools.

Control of Education

The federal government's Ministry of Education is responsible for all aspects of education in Malaysia. It has two sections—an administrative section, headed by the *permanent secretary to the ministry,* and a professional section, headed by the *chief education adviser.* The administrative section is responsible for all financial matters. The professional section looks after such matters as educational planning and research, teachers' training, school curricula, and instruction in the Muslim religion. An independent body of school inspectors and a board of examiners work closely with the chief education adviser and his assistants. The inspectors visit both government and private schools throughout Malaysia in order to check that they conform to government regulations and standards.

Every state in Malaya has a state department of education headed by a chief education officer appointed by the federal Ministry of Education. The chief education officer is responsible for the development and organization of the schools in his state in accordance with federal policy. The state departments of education in Sabah and Sarawak have retained more power and independence than departments of education in the states of Malaya.

In general, the federal government keeps strong central control over Malaysian education. It prescribes by law the general courses of study for all types of schools and the syllabuses to be followed in teaching particular subjects.

Paying for Education

Tuition is free in all national and national-type primary schools. In addition, the government gives some financial help to children to pay for textbooks and transport to and from school. In secondary schools, tuition is free until the end of the lower secondary course.

In higher grades pupils have to pay a monthly tuition fee, but the government awards some secondary school scholarships, and grants free textbooks to children who cannot afford to buy them. Universities also charge tuition fees. But a number of university students win scholarships given by the government, by business firms, or by other private institutions.

Teachers' Training

For a long time after Malaya became independent in 1957, and even after Malaysia was formed in 1963, teachers were scarce because of the rapid expansion of education. At the same time, many qualified teachers took other jobs because the country needed them as educated and experienced administrators. The Malaysian government had to devise a variety of programmes to train a large number of teachers rapidly and efficiently to serve the growing numbers of students.

Primary School Teachers are trained in many Day Training Centres throughout Malaya. The centres provide three-year courses for secondary school pupils who hold either the LCE or the School Certificate. During the first two years, students improve their general education and learn some educational theory. They spend the third year in practical work, teaching under supervision in schools and returning to the training centres only for

tutorial classes. Some large Day Training Centres have sections that train teachers for work in Malay, English, Chinese, or Tamil schools.

The ministry also provides correspondence courses for unqualified primary teachers. The teachers can obtain proper qualifications by passing an examination at the end of the course.

Lower Secondary School Teachers are trained in several residential training colleges. The colleges provide two-year courses for students who have obtained good passes in the School Certificate examination.

During the course, they continue their academic education to a higher level and study the theory and practice of teaching. Most residential colleges train teachers for work in ordinary lower secondary schools. But some graduates of the colleges teach in upper secondary schools because of a shortage of university graduates to teach at that level. In addition, there are some training colleges that specialize in preparing teachers for work in technical or vocational schools.

Upper Secondary School Teachers are generally trained in universities. They take a one-year course to obtain a diploma in education after they have completed their studies for an ordinary bachelor's degree. In the degree course, they study the subjects that they intend to teach. In the diploma course, they concentrate entirely on learning teaching methods and educational theory.

In the mid-1960s, the Malaysian government started a plan to train additional secondary school teachers on a part-time basis. The extra teachers were needed to staff the new comprehensive schools that the government was establishing at that time.

Teachers of Special Subjects, such as art, home science, physical education, and music, receive special training in teachers' colleges that have suitable facilities. The Specialist Teachers' Training College in Kuala Lumpur provides a wide range of specialist courses for qualified teachers. Most of these additional courses last one year.

History

In the 1700s, the only schools in Malaya were Koran schools where Malay children learnt some Arabic through studying the Muslim religion. A more modern system of education developed after 1800 under British influence. The oldest existing school in Malaya, the Penang Free School, was founded in 1816 by the British Colonial Chaplain of Penang. From the beginning, it was open to children of all races and religions, and provided education in Malay as well as in English. Other schools were established by charitable organizations, religious missions, and the British East India Company, which wanted to train clerks for its offices. In the late 1800s, British government authorities began to take an interest in Malayan education, and, in the early 1900s, founded the Malay College at Kuala Kangsar. The college prepared the sons of high-ranking Malays for entry into the civil service of the colony.

Throughout the early 1900s, government authorities continued to share responsibility for education with religious missions and other private bodies. The mission schools, especially those controlled by the Roman Catholic Christian Brothers and by American Methodist missionaries, provided much of the English-language education in Malaya. They were also pioneers in providing education for girls. Chinese families in Malaya organized a separate educational system for their children. The Malayan Chinese schools followed the same pattern of education as schools in China. In addition, the owners of rubber estates set up some Tamil schools for the children of their Indian workers. The government gave some financial help to most of these non-government schools.

This complicated system of combined government and private education lasted until the Japanese occupied Malaya during World War II. They almost put an end to any form of education by taking over most of the schools to provide accommodation for soldiers and members of the secret police. For many years after the end of World War II, there was little progress in education because the government had to spend most of its resources on fighting the communists in the Malayan Emergency (see MALAYAN EMERGENCY in the other Australasian volume).

After Malaya won independence in 1957, the government decided to create a new system of education instead of restoring the pre-war pattern. It established several committees to help it to formulate a national policy for education that would be acceptable to all the peoples in the country. On the recommendation of the Razak and Talib committees, the government introduced a standard curriculum for all government-aided schools, and began to introduce Malay as the main medium of instruction in them. It built many new schools and teachers' training centres, and, by 1962, it was able to provide free primary education for all the children in Malaya. At the same time, secondary education became more varied. The government introduced various technical and vocational courses for about 65 out of every 100 secondary school children.

Progress was equally rapid in other aspects of education. The Ministry of Education organized a wide range of evening classes for school-leavers or adults who had not had an opportunity to complete their education. The Ministry of Rural Development conducted successful campaigns to teach adults living in remote country areas how to read and write. By the mid-1960s, the Malaysian government had created a system of education that provided a wealth of opportunities for all the people who lived in Malaya. Education in Sabah and Sarawak developed much more slowly. In the early 1960s, only about 60 out of every 100 children in Sabah and 50 out of every 100 in Sarawak attended primary schools. The rest did not receive an education of any kind.

See also ADULT EDUCATION in this volume and UNIVERSITIES in the other Australasian volume.

EDUCATION IN NEW ZEALAND

EDUCATION IN NEW ZEALAND has a tradition of high standards. Since the early 1900s, almost every New Zealander has had seven or eight years' primary schooling. Since the 1930s, almost all children have had at least two or three years' secondary schooling. Education is free between the ages of 5 and 19, and compulsory between the ages of 6 and 15. Secondary education is *non-selective.* Children progress from primary to secondary schools without having to pass an examination.

Most children attend public primary and secondary schools, which are financed by the government. The public schools usually teach boys and girls together, but a few secondary schools are open to boys only or to girls only. Most private schools are administered by the Roman Catholic Church. A few children attend other private schools. Almost all private schools are for boys only or for girls only.

Many school pupils progress to institutions of higher education, and tuition at universities is free for all students who gain an entrance qualification. In addition, there are many opportunities for school leavers to continue their studies on a part-time basis. Technical institutes provide part-time and full-time courses for learners in a variety of trades and professional jobs. Secondary schools throughout New Zealand also provide evening classes for adults, and universities have special departments for adult education (see ADULT EDUCATION in this volume). The government conducts a technical correspondence school for part-time students in country areas (see CORRESPONDENCE SCHOOLS in this volume).

Elementary Education

Pre-School Education. Children below the age of five can attend *kindergartens* or *play centres.* Kindergartens have full-time, paid, and professionally trained staff. They are open to three- and four-year-old children five days a week. Mothers work together without pay to help a trained supervisor staff co-operative play centres. Most of the kindergartens and play centres offer free services.

Public Primary Schools. New Zealand has more than 2,000 public primary schools. In country areas and in small towns, they usually provide eight years of schooling. Children spend two years in infant classes, four years in *Standards 1 to 4* (primary classes), and two years of *Forms 1 and 2* (intermediate classes). In city areas, children usually attend primary schools for only six years, up to the end of Standard 4.

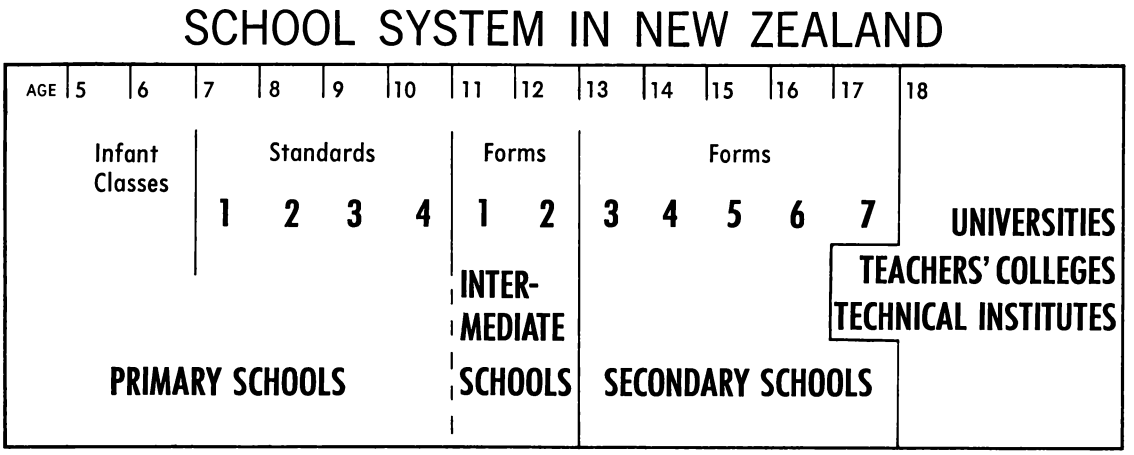
The range of subjects that the children study at primary schools is extremely wide. The basic subjects are reading, language, and mathematics. Older children learn to express themselves in good English and are introduced to English literature. In addition, they study natural science, social studies, and health education. Other subjects include arts, crafts, and music and singing. The children also have regular periods of physical education. In all subjects, teachers encourage the children to be creative and to enjoy their work by becoming involved in it in a practical way.

Private Primary Schools. About 10 out of every 100 primary school children attend private schools. Of the 10, about 9 attend schools run by the Roman Catholic Church. Both the Roman Catholic and Protestant schools give their pupils religious instruction and devote a portion of each school day to worship. Otherwise, they provide the same kind of general education as public schools. Government inspectors visit the private schools to make sure that they are well equipped and that they maintain adequate educational standards.

Intermediate Education

Intermediate education is a period of two years, called Forms 1 and 2, in which teachers help children to adjust to the difference between primary and secondary schooling. In the cities, many children receive their intermediate education in separate schools. In a few small towns, they make the adjustment in departments attached to secondary schools. In many small towns and in country areas, Forms 1 and 2 are attached to primary schools. New Zealand has more than 117 separate intermediate schools. There is one private intermediate school.

Intermediate pupils continue to study the basic subjects taught in primary schools. In many intermediate schools, pupils are introduced to secondary



New Zealand Information Service

Young Children in New Zealand can attend free kindergartens. Specially trained teachers supervise their activities.

school subjects. They can begin to learn another language and study aspects of mathematics and science that are traditionally associated with secondary education. Intermediate teachers continue to use most of the teaching methods employed in primary schools, but they also encourage pupils to accustom themselves to systematic study.

Secondary Education

Public Secondary Schools. Most children begin their secondary education when they are 13 years old. Usually, they progress automatically from intermediate classes to their local secondary schools.

New Zealand has over 230 public secondary schools. There are a variety of types, but they all provide much the same kind of education. The main differences between them depend on their size, location, and history. They are called either *grammar schools, high schools,* or *colleges.*

In addition to the public secondary schools, New Zealand has 46 *district high schools* located in small country towns. District high schools provide both primary and secondary education, beginning with infant classes and ending with a complete secondary school course. Their secondary departments are usually small, with fewer than 150 pupils and only seven or eight teachers. District high schools give their pupils the same basic course of study as other secondary schools, but they are unable to provide a wide range of specialist teaching. If pupils from a district high school want to enter a university, they complete their studies in a large secondary school in one of New Zealand's cities.

During the first two or three years at a secondary school, all children receive lessons in English language and literature, general science, social studies, art, mathematics, and physical education. In addition, they can choose to study such subjects as other languages, specialized sciences, commercial subjects, or agricultural and industrial skills. Subject specialization is left as late as possible in most schools. Then pupils are given a wide choice of subjects to choose from when their aptitudes and aspirations are more clearly developed.

The secondary schools place considerable emphasis on character-building. Sports and a range of cultural pursuits are an important feature of school life. The atmosphere and discipline of some of the schools, with prefects, school uniforms, and school *houses* (divisions of pupils), reflects the influence of British *public* (private) schools on New Zealand education. But many changes in these patterns are now appearing. For instance, in a number of secondary schools, school councils have replaced the prefect system, reflecting greater pupil participation in school organizations.

Private Secondary Schools. About 15 out of every 100 secondary school children attend the 110 private secondary schools in New Zealand. Most private secondary schools are run by the Roman Catholic Church. Others are run by the Church of England or the Presbyterian Church. A few are not associated with any religious bodies. Teaching standards and syllabuses in most private schools in New Zealand are similar to those in the public schools.

Special Education

For Children in Country Areas. A proportion of New Zealand's population is scattered throughout country areas. The government has always tried to give both country and city children equal educational opportunities. For many years, the country areas had poor roads between their isolated settlements. Many schools had only one or two rooms in which to provide a complete education up to Form 2, and small district high schools were established in the townships that had populations of about 500. Today, country areas have better roads and transport systems. The government has closed many small schools and has made arrangements for children to be taken to school by bus. Some small country schools provide primary education, but intermediate and secondary education is usually given in larger schools that serve a wide area.

The government pays travelling and boarding grants to help children attend the nearest primary and secondary schools. To ensure that country children are well taught, the government offers teachers inducements to serve in country areas. Teachers must undertake periods of country service in order to qualify for some increases in salary.

For Children Unable to Attend School. A few children who live in remote places, such as lighthouses, cannot attend school. These children receive their education from radio broadcasts and from a correspondence school conducted by the Department of Education. Parents supervise the correspondence lessons, and, from time to time, teachers travel to the most isolated places in order to meet their pupils. Correspondence-school pupils can also attend short residential courses in New Zealand's cities.

For Maori Children. In the early years of European settlement, European communities organized their own local boards of education and established their own primary schools. A few Maori children in the communities were admitted to these schools. The central government organized separate schools for the majority of Maoris because they lived in their own villages, apart from the Europeans. Today, Maoris and Europeans no longer live mainly in separate areas, and the Maori schools have been ab-

sorbed by the educational branch. Most Maori secondary school children attend the ordinary public secondary schools.

For Handicapped Children. Backward pupils receive instruction in special classes in public schools. Several schools have clinics that help children who suffer from speech defects or who have abnormal difficulties in reading. In larger towns, special schools have been set up to teach mentally handicapped children. New Zealand's Department of Health also maintains residential hospital training schools to provide full-time care for children suffering from severe mental defects. See SOCIAL SERVICES in the other Australasian volume.

New Zealand also has other special schools. These schools train and care for children who are blind, deaf, spastic, or suffering from other severe physical handicaps. Some towns organize special classes for children who are partially blind or partially deaf. Religious and other voluntary organizations provide extremely valuable help in the care of children who are handicapped. See VOLUNTARY SERVICES in the other Australasian volume.

Examinations

External examinations play a relatively minor role in New Zealand's school system. Children do not need to pass examinations to enter secondary schools, and most do not need to pass an entrance examination to gain admittance to a university. The system of accrediting by schools has largely replaced examinations for university entrance. See ACCREDITING in this volume.

An important external examination is the School Certificate Examination. Most pupils try this examination at the end of their third year in secondary school, when they are 16 years old. Candidates select four, five, or six subjects from a wide range of choices. Passes are awarded in individual subjects but entry to the sixth form may be based on an aggregate of marks in several subjects.

After four years' secondary education, pupils seeking entrance to a university may, if they are attending a school recognized for the purpose, be accredited as being fit for university studies. The Universities Entrance Board conducts a University Entrance Examination for those who are not accredited. A pupil who qualifies for entrance to a university by either method may be awarded a fees bursary which entitles him to the payment of his tuition fees for the minimum period required to complete a recognized course as a full-time student. In the universities entrance examination, English is a compulsory subject and students can choose four or five other subjects.

Most pupils intending to undertake university studies spend a further year at secondary school after qualifying for university entrance. In their seventh form year, they follow an advanced course leading to a Higher School Certificate which is awarded without external examination. This qualification is a prerequisite for the award of a fees and allowances bursary which entitles a full-time student to payment of tuition fees, cash allowances, and, in some cases, a boarding allowance. By sitting the university bursaries and entrance scholarship examinations, seventh form pupils may also qualify for certain supplementary allowances payable to full-time university students.

School Services

Health Services. New Zealand's Department of Health arranges for nurses to conduct regular examinations for all primary school children. Children who suffer from undernourishment or minor emotional problems may attend special health camps. Primary and intermediate school children have their teeth regularly inspected and treated in dental clinics attached to large schools. Secondary school pupils are entitled to free dental care from private dentists.

Psychological Services. The Department of Education provides psychologists in most of the major towns in New Zealand. The psychologists examine children and offer their advice at the request of parents, teachers, child welfare officers, and doctors. New Zealand also has area organizers of special classes for backward children. They examine backward children and organize programmes for them in primary, intermediate, and secondary schools.

Vocational Guidance. Vocational guidance officers visit all the secondary schools in the country. They co-operate with teachers in giving advice on educational courses and careers for pupils. They also help to find suitable employment for young people when they leave school.

Guidance Counselling. Many secondary schools now appoint a guidance counsellor to co-ordinate the whole field of personal, educational, and vocational guidance, and to give direct assistance to pupils with learning or social difficulties.

Higher Education

The main institutions that provide full-time higher education in New Zealand are universities, teachers' colleges, and technical institutes. The universities and technical institutes encourage adults to study part-time for some higher qualification. Other facilities for part-time study include the Workers' Educational Association, the Technical Correspondence School, which is administered by the Department of Education, and the evening leisure and technical classes attached to secondary schools.

Universities. New Zealand has seven universities that grant bachelors' degrees, masters' degrees, and doctorates. Bachelors' degree courses vary in length. Some, such as ordinary degree courses in arts or science, take three years. Others, such as degree courses in architecture, engineering, medicine or surgery, take four, five, or even six years. Students who want to take a master's degree usually have to study for a further one or two years after completing their bachelor's degree course.

In addition to degree courses, universities provide a variety of shorter courses that lead to diplomas in such subjects as business administration, dairy farming, education, home science, horticulture, physical education, town planning, public administration, public health, and social science. Vari-

ous universities specialize in particular subjects.

Most students enter a university when they are 18 or 19 years old. The minimum qualification for admission to degree courses is the Universities Entrance Examination.

Teachers' Colleges. New Zealand has eight teachers' colleges for primary teachers and two for secondary teachers. The colleges are independent of the universities.

Most students enter primary teachers' colleges when they are between 17 and 19 years old. Most entrants possess the university entrance qualification. Some of them undertake university study at the same time as their teachers' college course.

All primary teachers' colleges offer three-year courses. The course of study deals with child development, educational psychology, the principles and practice of teaching, and advanced study of curricular subjects taught in primary schools.

Students who want to teach in a secondary school usually attend a university as full-time students. After completing a bachelor's or master's degree course, they take a one-year course of training at a secondary teachers' college. The course concentrates on educational psychology and on the principles and practice of teaching in secondary schools.

Other Institutions. There are 12 technical institutes in New Zealand. They provide training for apprentices in various trades, and more advanced courses in a variety of commercial, industrial, and scientific subjects. Special schools in New Zealand train dental nurses, physiotherapists, kindergarten teachers, and other professional workers.

Control of Education

Educational administration in New Zealand is extremely complex, for historical reasons. Educational institutions that were established at various periods in New Zealand's history still retain distinctive methods of administration and control.

Public Administration. Ten district boards of education control primary and intermediate schools, district high schools, and area schools. Each board consists of voluntary members who are elected by local school committees. Each school has its own committee, and the members of the committee are elected by local householders. The committees are responsible for maintaining the buildings, grounds, and equipment of their schools. The education boards have a general responsibility for looking after their schools, for providing transport for pupils, and for employing teachers.

Boards of governors control most secondary schools. Each secondary school has its own board, the members of which are elected by the parents of pupils, by district education boards, and by various other organizations. Boards of governors have much the same kinds of responsibilities as district education boards. Some New Zealand cities have established secondary school councils to take over some of the functions of the various boards of governors. Each secondary school council is responsible for several schools.

The government's Department of Education supervises all these education authorities. The main functions of the department are to provide professional leadership and guidance and to allocate and control the amount of money spent on education. It co-ordinates building programmes for schools throughout the country. In addition, the department supervises the work of teachers by sending inspectors to visit schools. It also supports the work of schools by providing a number of special services. It has a branch that advises on school curricula, and a branch that issues school publications. In addition, the department provides classroom advisers in art, mathematics, physical education, infant teaching, reading, music, and science, and administers the work of psychological and vocational guidance officers. The department also controls the School Certificate Examination, the certification of teachers, and the provision of allowances for students at universities or teachers' colleges.

Universities are mainly controlled by their own university councils. They obtain most of their income from the New Zealand government, and a Universities Grants Committee negotiates with the government to obtain the money that the universities need. In purely academic matters, each university administers itself through its Senate. The Senate consists of members of the university teaching staff.

Private Administration. Private schools have several forms of administration. Protestant schools have boards of governors or trustees that resemble the boards of governors of public secondary schools. Roman Catholic primary schools are controlled by the bishops, each of whom is responsible for education in his area. Most Roman Catholic secondary schools are controlled by various Roman Catholic religious orders, such as the Marist Brothers, the Christian Brothers, or the Sisters of Mercy.

Paying for Education

In Public Schools, the New Zealand government provides free education for all pupils. Local boards are responsible for school administration, but the central government provides all the finance. As a result, schools in poor areas of the country are as well financed as schools in rich areas.

Public schools are allocated a sum of money each year to provide free textbooks for pupils. Children in country districts obtain free transport to school, and parents whose school-children have to board away from home receive a boarding allowance.

In Private Schools. Roman Catholic primary schools obtain almost all their income from funds raised by the Roman Catholic Church. Roman Catholic secondary schools are financed by the religious orders that administer them, by funds that they raise themselves, and by school fees. Protestant private schools obtain their income from school fees as well as from endowments and other forms of trust funds.

The tuition fees in secondary schools range up to $NZ 800 a year. Board in school hostels costs from $NZ 300 to $NZ 1,200 a year. Each school usually offers a few scholarships that cover the cost of both board and tuition.

Private schools receive financial aid from the gov-

ernment for buildings and salaries. The government also helps them in many other ways. Pupils in private schools receive free textbooks, equipment, free transport in many country areas, and boarding allowances if there is no public school near their home.

In Universities, most students receive free tuition. Every student who has obtained the university entrance qualification is entitled to a grant that pays for his tuition fees for three years, provided he is reasonably successful from year to year in his course. Students who have obtained the Higher School Certificate receive an additional yearly allowance that helps pay for textbooks and essential equipment. They can also claim board allowances if they have to live away from home. In addition to these allowances, there are some special grants that meet all the student's living expenses. Students who obtain these special grants are required to work for the government for three or four years when their education is completed.

Teachers' Training

Primary School Teachers were in short supply in New Zealand during the 1950s because of the large number of children enrolled in primary schools. In the early 1960s, fewer pupils entered primary schools, and it was possible to introduce three years' training for teachers in place of two years. At the same time, the introduction of three years' teachers' training delayed the possibility of reducing the size of classes. In public primary schools, there are about 27 pupils for every teacher. Private primary schools have about 32 pupils for every teacher.

Students at primary teachers' colleges receive grants for their tuition, and boarding allowances if they live away from home. After training, young teachers become fully certificated when they have satisfactorily completed one year of teaching. They are placed in positions for the next two years and are then free to apply for jobs in any part of New Zealand. Appointments committees of district education boards select teachers for their schools.

Many teachers in private schools have been trained in the same colleges as teachers in public schools. There is a Roman Catholic teachers' college. Teachers can interchange between public and private schools.

Secondary School Teachers are in demand in New Zealand, particularly in some subjects. The government encourages university students to enter the teaching profession by agreeing to pay them generous study-grants if they promise to teach in New Zealand when their studies are completed.

Secondary teachers' colleges provide one-, two-, or three-year courses for university students and graduates during which the graduates learn teaching methods that suit non-academic as well as scholarly pupils. After training, teachers can apply for any position for which they are qualified. They are appointed to their jobs by the boards of governors of secondary schools.

New Zealand has no special training institutions for teachers in private secondary schools. Teachers in Protestant private schools are usually trained in the same colleges as teachers in public secondary schools. The Roman Catholic religious orders that administer secondary schools usually train their own teachers.

Specialist Teachers in primary schools may gain a qualification in speech therapy by undertaking a special course during their initial training. Teachers of deaf or handicapped children qualify by taking a further one-year course of training following certification.

Educational Research

Government Research. The government's Department of Education has several sections that conduct research into educational problems. The building section is concerned with the design of schools. The curriculum development unit experiments with changes in school curricula and in methods of teaching. The general research section plans ahead to see how schools and universities can adapt themselves to changes in the requirements of New Zealand's population.

University Research. All New Zealand's universities have departments of education. The teaching staff and the graduate students of the departments carry out research into a wide range of topics. They explore any question that interests them, from the philosophies of educators in ancient times to the ways in which young children learn to think.

Private Research. The New Zealand Council for Educational Research is an independent organization, established in 1933. It receives annual grants from the government and from various other bodies, such as universities, teachers' associations, education authorities, philanthropic trusts, and commercial organizations. Many of the council's research workers have been concerned with major issues in New Zealand's educational policy. They have evaluated the usefulness of intermediate schools, the effectiveness of methods of selecting students for university entrance, and the organization of adult education. Some researchers have concentrated on the problems involved in teaching special groups of children, such as children of high intelligence, backward children, and crippled children. Others have examined methods of teaching particular school subjects. The council publishes research reports that help to shape the policies of the Department of Education, the education boards, and the universities. The reports have also influenced teaching methods in both primary and secondary schools in New Zealand.

History

Early Years. Before Europeans settled in New Zealand, the Maori people had their own schools for training priests. Students learned the religion, history, and traditions of their people. After 1816, missionaries established the first European schools for Maoris. The mission schools taught children to read and write in the Maori language, and instructed them in practical skills and in knowledge of the Bible.

The first schools for European children in New Zealand were established by private individuals or organizations. But, in 1847, the government passed a

law that granted funds to Christian denominations to found free schools for Maoris and to subsidize fee-charging schools for European children. This system operated in the northern parts of New Zealand.

Provincial Arrangements. In 1853, New Zealand was divided into provinces, each with its own governing council. The councils tried various ways of providing education. In Nelson, a board of education organized a system of free public schools paid for by taxation. In Canterbury, the provincial council at first subsidized Church schools but later established a system of public schools. The South Island provinces had only a small Maori population, plenty of rich land, and abundant gold deposits. They soon had good facilities for primary education, several secondary schools, and a university. In contrast, the North Island provinces made slow progress in education, partly because of the Maori Wars (see MAORI WARS in the other Australasian volume).

National Education. In 1876, the central government abolished the provincial councils. Its Education Act of 1877 established a nation-wide system of primary education. The main features of the new system were that the schools were free and public, administered by provincial boards of education, but financed by the central government. Schooling was compulsory from the ages of 7 to 14, and free from the ages of 5 to 15. The school curriculum omitted religion to avoid religious controversies.

At first, only about half the children of school age enrolled in the new public schools. It took 30 years to spread enough schools to all parts of the sparsely settled country. But, by the early 1900s, almost every child could complete at least six years at school.

The Education Act of 1877 did not provide a system of secondary schools. New Zealand already had independent secondary schools, maintained by private endowments and by school fees. But they were mainly for the children of wealthy parents, even though some children from poorer sections of the community won scholarships to them.

In 1902, the government's Department of Education introduced a system of offering grants to secondary schools to pay for every free pupil they admitted. Later, the government extended the system and made free secondary education available to all pupils who passed a leaving examination at the end of their primary school course.

The secondary schools trained pupils for the Universities Entrance Examination. They could not be persuaded to develop agricultural, commercial, and technical courses. Eventually, in some of the large towns in New Zealand, technical high schools were set up.

After World War I, more and more pupils progressed from primary to secondary schools. Until the 1920s, the curriculum of primary schools did not prepare pupils for secondary education. The original aim of the primary schools was to provide a complete education for working-class children. The original aim of the secondary schools was to equip a few intellectual leaders for study at a university. When pupils went from a primary to a secondary school, they met with a sharp change. After 1923, the government began to develop a system of intermediate schools to allow students to begin secondary education at an earlier age, and to help them to adjust to the change more gradually.

Expanding Courses. In 1936, the examination at the end of the primary school course was abolished, and secondary education was opened to all pupils from primary schools. At that time, the Universities Entrance Examination still exerted too much influence on the curriculum of secondary schools. Employers accepted it as a general leaving certificate, and for this reason many pupils took an academic course, although a practical course would have suited them better. In addition, the Universities Entrance Examination was unsatisfactory as a means of selecting students for a university education. In 1944, the University of New Zealand introduced the system of accrediting in place of the Universities Entrance Examination. The School Certificate Examination, which offered a wider range of subjects, replaced the Universities Entrance Examination as a leaving qualification.

Since World War II, many more pupils have tended to stay at school beyond the minimum leaving age, and many more students have progressed to a university. Today, the proportion of university students and graduates in New Zealand's population is one of the highest in the world.

Aids to Learning

Related Articles in WORLD BOOK include:

MAIN VOLUMES

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Maoris
Rhodes Scholarships
School of the Air
Scientific Research
Universities

Outline of this article is as follows:

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   B. Public Primary Schools
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   B. Private Administration
IX. **Paying for Education**
   A. In Public Schools
   B. In Private Schools
   C. In Universities

X. **Teachers' Training**
  A. Primary School Teachers
  B. Secondary School Teachers
  C. Specialist Teachers
XI. **Educational Research**
  A. Government Research
  B. University Research
  C. Private Research
XII. **History**

Books to Read about this topic include:

Havill, S. J., ed. *Issues in New Zealand Special Education.* Hodder and Stoughton, 1972.

McLeod, A. L. *Pattern of New Zealand Culture.* Oxford University Press, 1969.

Mitchell, F. W., ed. *New Zealand Education Today.* Reed, 1968.

EDWARDS, HUGHIE (1914-), an Australian airman, won the Victoria Cross while serving with the Royal Air Force (RAF) during World War II. During a daylight raid on the German port of Bremen on July 4, 1941, he led his formation overland at extremely low levels, carrying away telegraph wires, passing under high tension cables, and flying through a formidable balloon barrage. In the hail of fire near the target, every aircraft was hit and four were destroyed. But Edwards pressed home the attack and withdrew the surviving aircraft without further loss.

HUGHIE IDWAL EDWARDS was born at Fremantle in Western Australia. He landed in Britain in 1936 and by May, 1941, was commanding No. 105 Squadron of the RAF. After the war he held several appointments with the RAF until his retirement in 1963. He became governor of Western Australia in 1974.

EGG PRODUCTION is an important industry in Australia and New Zealand.

In Australia, 75 out of every 100 eggs come from commercial poultry farms. Commercial production amounts to more than 200 million dozen eggs a year. Nearly 90 million dozen are produced in New South Wales, which is the largest producer.

Sales of eggs in shell within Australia amount to more than 140 million dozen. The rest are processed and mainly exported in frozen or dried form.

Egg marketing boards, which operate in all states, organize the distribution and sale of all commercially produced eggs and function as producer-controlled co-operatives. Most board members are elected by producers. Others are appointed by governments. The exporting authority, the Australian Egg Board, comprising representatives of all state egg boards, is located in Sydney.

Japan is Australia's largest customer for egg products. Hong Kong and the Persian Gulf states are the main buyers of eggs in shell. They take about six million dozen a year.

In New Zealand, total annual egg production amounts to about 85 million dozen. About 50 million dozen of these eggs are handled by licensed egg distributors. Total domestic sales, including eggs sold in frozen form to bakers and pastry cooks, amount to 80 million dozen. There is a national surplus of 5 million dozen. On average, each New Zealander eats 330 eggs each year.

The New Zealand Poultry Board was established in 1933. Its function is to organize and develop the poultry industry. The board has seven members, two appointed by the government and five elected by postal ballot of all registered poultry-farmers.

The Egg Marketing Authority, established in 1953, comprises the same personnel as the board, except for the addition of one further government appointee. The authority administers the physical handling of eggs, including receipts, size, quality grading, and distribution. It also oversees the manufacture of frozen eggs, which is carried out by licensed egg distributors appointed by the authority.

Licensed egg distributors have been appointed in all the main cities of New Zealand and most of the larger towns. These areas have been declared marketing areas, within which licensed egg distributors are required to provide facilities for receiving eggs from poultry-farmers. The distributors grade and handle the eggs and offer a free delivery service to retailers in each area. Licensed egg distributors handle eggs on a consignment basis, selling by wholesale to retailers. All eggs sold wholesale in marketing areas must be purchased from the licensed egg distributor in that area.

EILDON DAM forms a large storage reservoir on the Goulburn river in northern Victoria. The dam is constructed of earth and rockfill. It rises 79 metres (259 feet) high and has a capacity of 3,390 million cubic metres (2,748,000 acre-feet). It was opened in 1956.

Farmers in the area served by the Eildon dam concentrate on dairy products, fruit, wool, and fat lambs. Water from the dam also produces hydro-electric power.

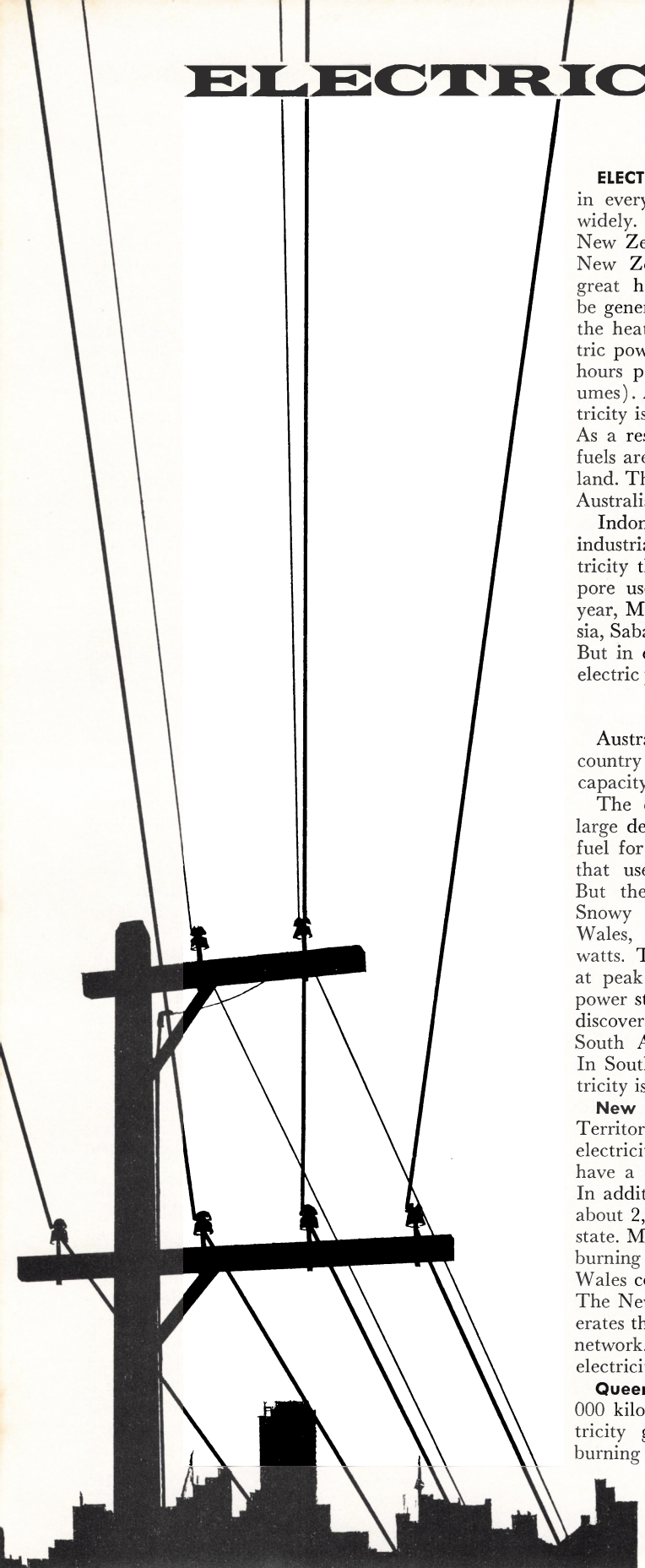
Lake Eildon is a popular tourist attraction with an area of 130 square kilometres (50 square miles) and a shoreline of 515 kilometres (320 miles). It provides for most aquatic sports including fishing. The lake is stocked with brown and rainbow trout.

See also VICTORIA (colour picture) in the other Australasian volume.

EISTEDDFOD is a Welsh name used in Australia to describe musical and elocution competitions. The first recorded eisteddfod in Australia was held by Welsh miners at Ballarat in 1855. Other early contests were held at Newcastle in 1875 and Brisbane in 1881. The City of Sydney Eisteddfod, which began in 1933, has developed into one of the largest events of its type in the world. It now includes drama, singing, dancing, debating, and playing musical instruments. Contests have been held in Adelaide since 1950 and in Darwin since 1965.

ELDER, SIR THOMAS (1818-1897), a pastoralist and benefactor, was a chief partner in Elder-Smith and Company. In association with Peter Waite, he invested in sheep stations in northern South Australia, and spent much money improving these properties, especially on water conservation. He contributed finance and camels for the inland expeditions of Warburton (1873), Giles (1875), and Lindsay (1891). In the 1860s, Elder invested in the Moonta and Wallaroo copper mines. He donated more than $A 200,000 to the University of Adelaide. He was born at Kirkcaldy in Scotland and arrived in Adelaide in 1854.

ELECTRIC POWER



ELECTRIC POWER is an important form of energy in every country of Australasia, but its use varies widely. The industrialized countries of Australia and New Zealand use large amounts of electric power. New Zealand is particularly fortunate in having great hydro-electric resources, and electricity can be generated cheaply. It also generates power using the heat of the Earth. Annual consumption of electric power in New Zealand is about 3,000 kilowatt-hours per person (see KILOWATT in the main volumes). Australia gets little rain, and most of its electricity is generated by power stations that burn coal. As a result, electricity is more expensive and other fuels are more important than they are in New Zealand. The total annual electric power consumption in Australia is about 2,500 kilowatt-hours per person.

Indonesia, Malaysia, and Singapore have little industrial development, and generate much less electricity than do Australia and New Zealand. Singapore uses about 400 kilowatt-hours a person each year, Malaya about 200 kilowatt-hours, and Indonesia, Sabah, and Sarawak less than 100 kilowatt-hours. But in every country in the region the demand for electric power is increasing rapidly.

Australia

Australia uses more electricity than any other country in the region. Its power stations have a total capacity of nearly 17,000,000 kilowatts.

The eastern part of the country has extremely large deposits of coal, which are a cheap source of fuel for power stations. Tasmania is the only state that uses large amounts of hydro-electric power. But the completed hydro-electric scheme in the Snowy Mountains, in the south of New South Wales, has a capacity of about 5,000,000 kilowatts. The scheme provides electric power mainly at peak hours, adding to that produced by other power stations. Since World War II, geologists have discovered deposits of natural gas in Queensland, South Australia, Victoria, and Western Australia. In South Australia, 60 per cent. of the state's electricity is produced by natural gas.

New South Wales, with the Australian Capital Territory, uses more than 40 per cent. of all the electricity generated in Australia. Its power stations have a total capacity of about 6,000,000 kilowatts. In addition, the Snowy Mountains Scheme provides about 2,000,000 kilowatts of peak load power to the state. Most of the state's electricity comes from coal-burning power stations built on the New South Wales coalfields (see COAL-MINING in this volume). The New South Wales Electricity Commission generates the power and controls the major transmission network. County councils generally distribute the electricity to consumers.

Queensland has a total capacity of about 2,000,000 kilowatts. About 90 per cent. of the total electricity generated is produced in power stations burning black coal and 9 per cent. is produced in

hydro-electric stations. The remaining 1 per cent. is produced by internal combustion and gas turbine stations which use oil as their energy source. But the power station at Roma also uses locally produced natural gas. Various authorities generate and distribute electricity in Queensland. The State Electricity Commission regulates the general control, organization, and development of the industry.

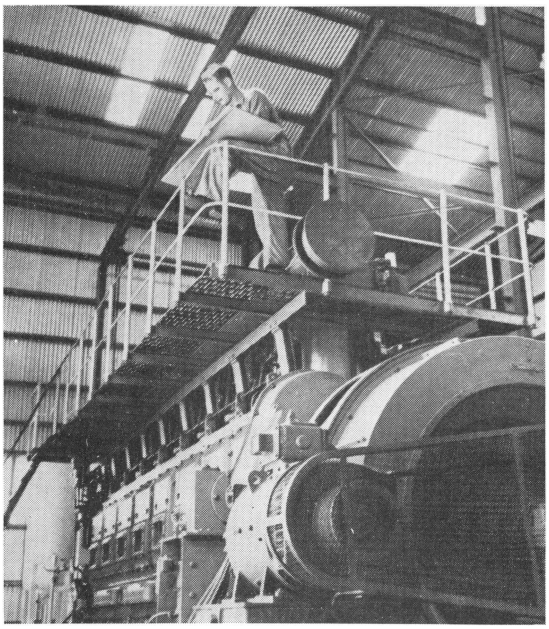
South Australia has a total capacity of just over 1,000,000 kilowatts. It has no hydro-electric power stations but uses locally mined coal, natural gas, and some petroleum. The Electricity Trust of South Australia generates, distributes, and sells electricity throughout most of the state.

Tasmania relies almost entirely on hydro-electricity. Its 22 power stations have a total capacity of about 1,400,000 kilowatts. They are operated by the Hydro-Electric Commission of Tasmania which distributes and also sells the electricity.

Victoria, with a total available capacity of nearly 4,000,000 kilowatts, is second only to New South Wales among the states. Its capacity includes about 900,000 kilowatts from the Snowy Mountains Scheme.

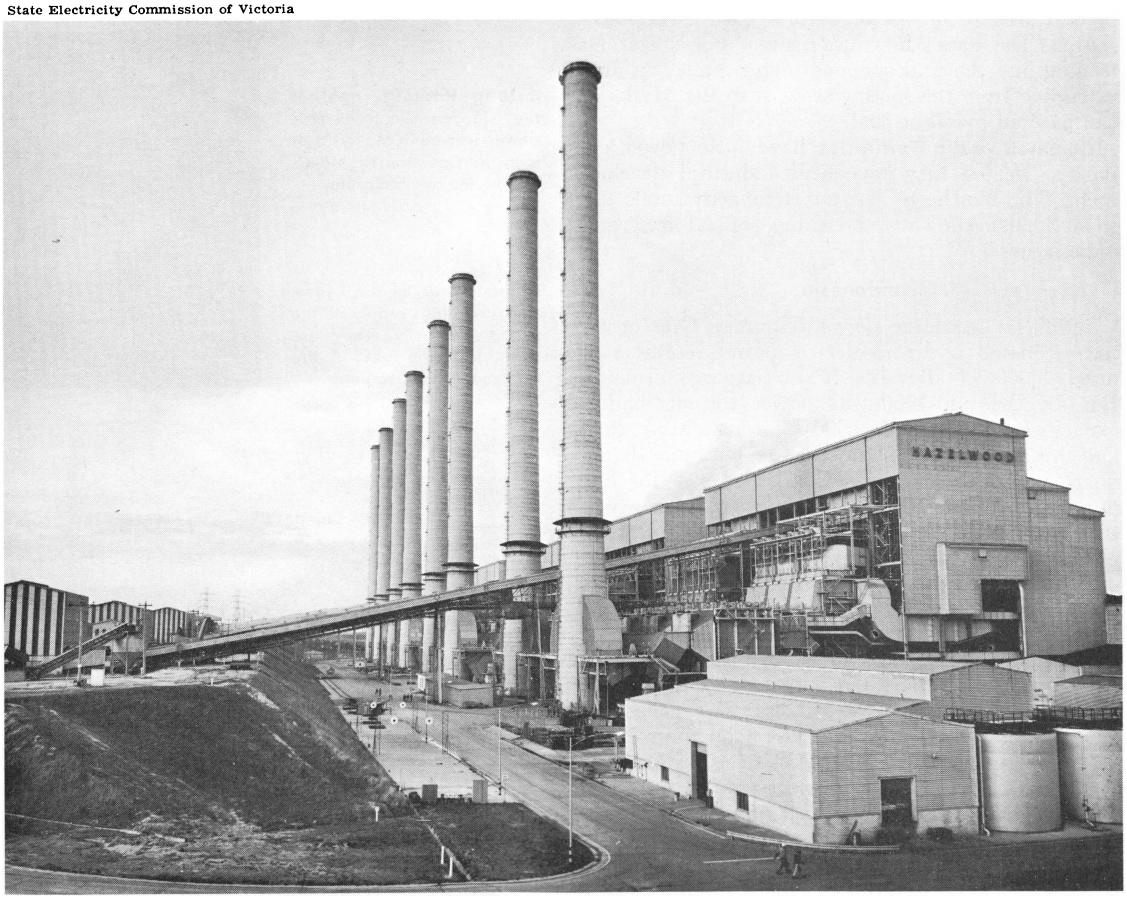
Roma Power Station, *below,* in southern Queensland, is powered by natural gas. It came into operation in 1961.

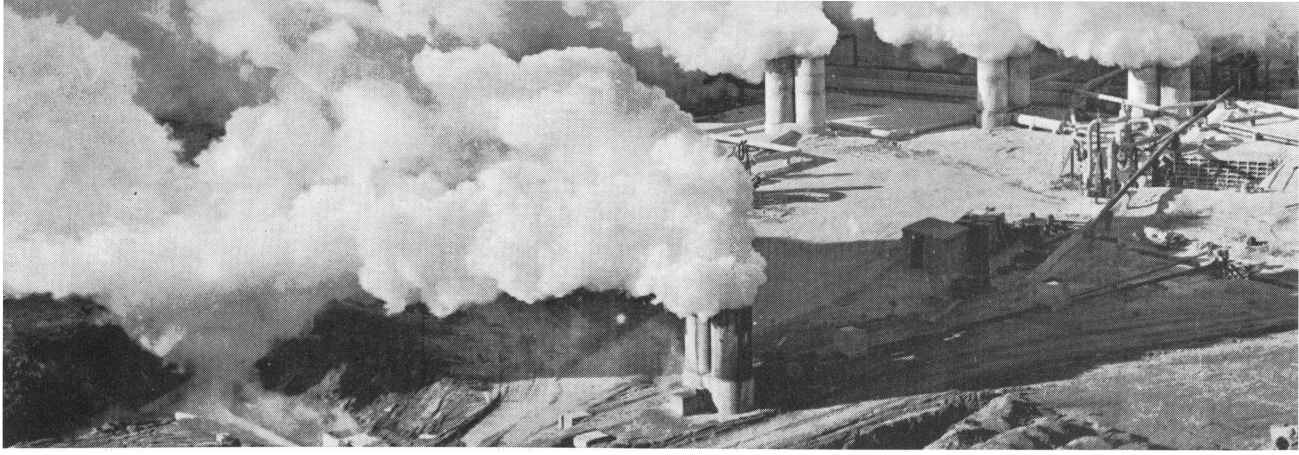
V. Calleja



Hazelwood Power Station, *below,* in the Latrobe Valley, in Victoria, burns coal from the nearby open-cut mines.

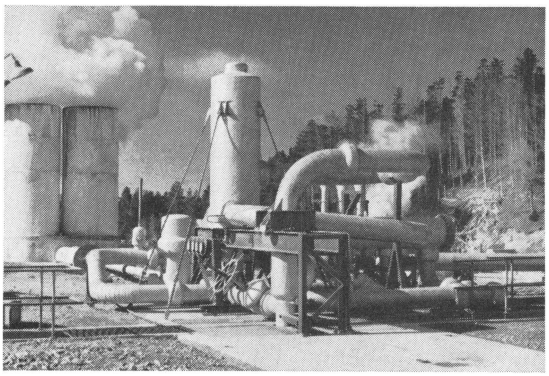
State Electricity Commission of Victoria





N.Z. National Publicity

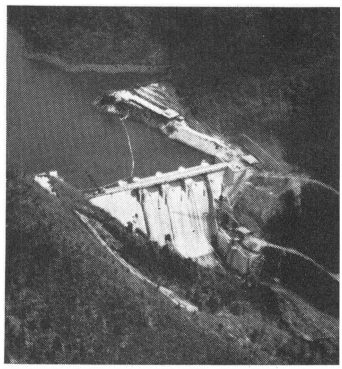
Wairakei Geothermal Power Station, *above* and *right,* is in the North Island of New Zealand. It uses high-pressure steam from a vast underground hot-water system.



Apart from four hydro-electric plants, Victoria's power stations burn mainly locally mined brown coal. This coal is a poorer fuel than black coal, but it is extremely cheap to produce from open-cut mines. The State Electricity Commission generates and distributes the electricity.

Western Australia has the smallest power capacity among the states—1,085,186 kilowatts. Western Australia's largest power station in the industrial complex of Kwinana on the outskirts of the Perth metropolitan area is an oil- or natural gas-fueled power station. The state's four other major power stations feeding into the grid system which supplies an area extending from the southwest coast to the Midlands can be fired by oil or coal.

Commonwealth Territories have little power capacity, because they have little industrial development. The Northern Territory's capacity totals less than 30,000 kilowatts, consisting of oil-fired and diesel generators.



Batang Padang, *right,* is the largest hydro-electric power scheme in Malaysia. It is in the Cameron Highlands of the Malay Peninsula.

Perak Flying Club

Indonesia

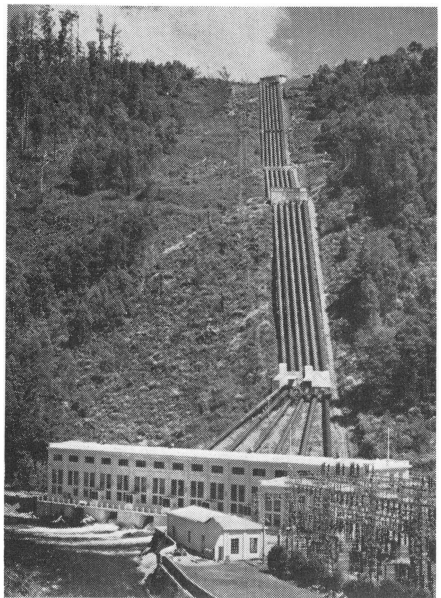
Indonesia has large power resources. One survey has estimated its hydro-electric power resources as nearly 3,000,000 kilowatts. It also has large oil-fields. But, by the mid-1960s, its power stations had a capacity of less than 500,000 kilowatts. More than half this capacity was hydro-electric, but more than a quarter was diesel-powered. The reason for the number of diesel generators is the speed with which they can be installed and the readily available fuel.

In 1957, the Indonesian government stated that it aimed to have a total capacity of 3,750,000 kilowatts by 1980. Major hydro-electric power developments include the Jatiluhur project in western Java, the Karangkates project in eastern Java, and the Asahan project in northern Sumatra. The Jatiluhur project, completed in 1965, has a capacity of 125,000 kilowatts. It also assists in flood control and irrigation, and provides commercial fresh-water fishing grounds. The Asahan project will have a final capacity of 400,000 kilowatts, the largest in the country.

Since 1957, the Perusahaan Listrik Negara (PLN: State Electricity Enterprise) has run Indonesia's

In Tasmania, *below,* hydro-electric stations supply all the state's electricity. They use water from the lakes of the central highland region.

Australian News



public electricity supply industry. It is a government body. The PLN is divided into 13 divisions called *Exploitasi* to distribute power throughout the republic. Java, which has the largest population of all Indonesia's 3,000 islands, has about 77 per cent. of the country's total generating capacity. Sumatra has about 13 per cent., and the remaining 10 per cent. is divided among all the other islands. The PLN has not yet developed a large transmission network, and most power stations supply only local users.

Malaysia

Peninsular Malaysia has a fairly well-developed electricity supply system. The major supply authority is the National Electricity Board of the States of Malaya (N.E.B.). In the mid-1970s, the total generating capacity of the N.E.B. was 853,000 kilowatts. More than half of the N.E.B.'s generating capacity was in the form of oil-fired thermal stations. The largest of these was the Tuanku Jaafar Power Station at Port Dickson. There were two major hydro-electric schemes in operation—The Cameron Highlands Scheme and the Batang Padang Scheme. All the major power stations are inter-connected by a grid. In the mid-1970s, the Tuanku Jaafar Power Station was extended and a hydro-electric power station at Temenggor was under construction.

The main supply authority in Sarawak is the Sarawak Electricity Supply Corporation (SESCO). In the mid-1970s, the total generating capacity of SESCO amounted to 54,000 kilowatts. The power stations were mainly diesel powered. The main supply authority in Sabah is the Sabah Electricity Board (SEB). In the mid-1970s, the SEB had a total generating capacity of 88,000 kilowatts, all in diesel power stations. There is little inter-connection among stations in either Sabah or Sarawak.

New Zealand

New Zealand's total power station capacity is about 4,000 megawatts, most of which is operated by the New Zealand Electricity Department. The department also operates main transmission networks, but 65 municipal and electricity boards distribute the power.

In 1965, a 5,000-volt direct current transmission line began operation between Benmore in the South Island and Haywards in the North Island. This line combines the electricity transmission and distribution systems of the two islands. The line is 606 kilometres (379 miles) long and includes a submarine cable 40 kilometres (25 miles) long under Cook Strait. The North Island uses about twice as much electricity as the South Island, but the South Island has far greater hydro-electric resources.

Hydro-Electric Power. Much rain falls on New Zealand's mountainous countryside. As a result, more than three-quarters of all the electricity generated there comes from hydro-electric power stations.

In the North Island, the main source of hydro-electric power is the Waikato River, which rises in Lake Taupo and flows into the Tasman Sea south of Auckland. Eight hydro-electric stations on this river have a total capacity of more than 1 million kilowatts. The Tokaanu station is the first power station of the Tangariro hydro-electric power development scheme to come into service. It produced its first electricity in 1973.

The country's largest station is Manapouri, with an installed capacity of 700 megawatts. The Manapouri scheme, in the south-west of the South Island, is fed from Lakes Manapouri and Te Anau. The power station is 210 metres (700 feet) underground, and water flows from the station to the sea through a tunnel 10 kilometres (6 miles) long.

The Waitaki River flows from three lakes high in the South Island's Southern Alps. The Upper Waitaki power development scheme was under construction in the 1970s. Existing stations on the Waitaki River are Benmore, Aviemore, and Waitaki. Another large South Island station, Roxburgh, is on the Clutha River.

Thermal Power. New Zealand has large coal deposits, but only one power station, the 210 megawatt Meremere station, is presently coal-fired. The hydro-electric and geothermal stations are more economical. But a coal-fired station was under construction in the mid-1970s near a coal-field at Huntly in the North Island.

Besides Meremere, there are four other thermal power stations, all also in the North Island. These stations are an oil-fired station at Marsden, a gas-turbine station at Otahuhu, the Wairakei geothermal power station, and an oil- and gas-fired New Plymouth station.

Geothermal Power. The North Island is fortunate in having regions where power stations can use natural steam from underground volcanic sources. The Wairakei geothermal power station started operating in 1958, and was the second geothermal station built in the world. It is at present supplying nearly seven per cent. of New Zealand's electricity requirements. The power station stands on the banks of the Waikato River, 10 kilometres (6 miles) north of Lake Taupo. It is in a large thermal region that includes hot springs and several active volcanoes.

Geothermal electricity is produced by drilling into an underground water system that has been heated by hot rocks. Releasing the pressure on the extremely hot water causes it to boil and produce steam. More than 60 bores supply steam to the station. The steam drives 13 turbo-generators, which produce the electricity. The total generating capacity of the Wairakei geothermal power station is about 165,000 kilowatts.

Singapore

The Public Utilities Board operates Singapore's electricity supply system. The three main stations are oil-fired. In addition to these stations, there is a gas turbine station at St. James and another one at Senoko.

See also ELECTRIC POWER in the main volumes; SNOWY MOUNTAINS SCHEME in the other Australasian volume.

ELECTRICAL INDUSTRY grew considerably in Australia and New Zealand after World War II. It developed more slowly in Indonesia, Malaysia, and Singapore. Australian factories produce electrical goods worth $A 640 million each year. The goods include dynamos, telephone apparatus, batteries, neon signs, and electrical equipment for homes and factories. New Zealand factories produce electrical goods worth about $NZ 44 million. They produce and assemble electrical equipment for homes, and light electrical goods. Malaysia and Singapore have begun to develop their electrical industries. But most factories only assemble goods from imported parts. The electrical industry in Indonesia is still small.

ELIZABETH (pop. 33,363) is the second largest city in South Australia. It lies 27 kilometres (17 miles) north of Adelaide and was founded in 1955. Elizabeth is a well-planned city consisting of residential neighbourhoods of 5,000 to 6,000 people each with its own schools and shops. There is a weapons research establishment in the city. Factories in Elizabeth are situated in industrial estates. These factories produce motorcars and washing machines. Elizabeth has a large commercial and shopping centre serving the surrounding region.

ELIZABETH FARM HOUSE is the oldest building still standing in Australia. The Australian wool pioneer John Macarthur built the house in 1793 on a grant of 40 hectares (100 acres) of land near Parramatta and named the farm after his wife. The merino sheep he raised there established the Australian wool industry. In 1794, Macarthur added 60 hectares (150 acres) to his original land grant. The house was owned by the Macarthur family until 1881, when it changed hands. The original house, consisting of four main rooms, a kitchen, and servants' quarters, has been added to several times during its history, but the old walls and ceilings still exist as part of the present house.

See also MACARTHUR, JOHN (picture), in the other Australasian volume.

Electrical Industries in Australasia manufacture and assemble a wide range of products, including television sets.
Australian News and Information Bureau

ELIZABETHAN THEATRE TRUST is Australia's national theatre movement. Its aim is to encourage and promote performances of drama, opera, and ballet in Australia. It especially aims to encourage drama written by Australian playwrights. The trust arranges for professional drama, opera, and ballet companies to tour the country and offers technical and financial help to amateur theatre companies. It was formed in 1954 to mark Queen Elizabeth II's visit to Australia that year.

ELKINS, MARGRETA (1930?-), an Australian singer, achieved great success as a concert artist and opera singer in Europe and North America. She was born in Brisbane, and spent several years with the National Opera Company of Australia. She went to Britain in 1956. She sang with the Dublin Grand Opera Company, The Carl Rosa Company, the Welsh National Opera, Sadler's Wells, and the Handel Opera Society. She became a contracted singer to the Royal Opera House, Covent Garden, in London, in 1959. Originally a mezzo-soprano, she began singing soprano roles in the mid-1960s.

ELLICE ISLANDS. See GILBERT AND ELLICE ISLANDS in this volume.

ELLIOTT, HERB (1938-), an Australian runner, set a world record by running a mile in less than 4 minutes 17 times before he retired in 1962. He was born at Subiaco, near Perth, and was named HERBERT JAMES ELLIOTT. In 1958, he set a world record by running a mile in 3 minutes 54·5 seconds. This record was later beaten. He won the 1,500 metre race at the Olympic Games in 1960 in a world record time of 3 minutes 35·6 seconds.

EMANCIPISTS. See HISTORY OF AUSTRALIA (The Beginnings [1788-1821]; Colonial Government and Society) in this volume; TRANSPORTATION in the other Australasian volume.

EMDEN was a German cruiser that was stationed in the China Seas and the Indian Ocean at the outbreak of World War I. It sank or captured 22 merchant ships, raided Penang harbour, and shelled an oil station at Madras. On Nov. 9, 1914, the *Emden* went to Direction Island, off the Cocos Islands, in order to destroy a British cable station. But the *Sydney,* an Australian light cruiser, sank the *Emden.*

EMERSON, ROY. See TENNIS (History) in the other Australasian volume.

EMIGRATION. See IMMIGRATION AND EMIGRATION in this volume.

EMU. See EMU in the main volumes.

ENCOUNTER BAY lies at the entrance of Lake Alexandrina, at the mouth of the Murray River, between the northern end of the Coorong and Cape Jervis. In 1802, the British navigator Matthew Flinders in the *Investigator* encountered the French navigator Nicolas Baudin in the bay.

The *Endeavour*, commanded by James Cook, arrived at Botany Bay on April 29, 1770. It had originally been a coal-carrying vessel.

Australian News and Information Bureau

ENDEAVOUR was the ship in which the British explorer James Cook sailed on his first voyage between 1768 and 1771. H.M.S. *Endeavour* was a three-masted barque, about 30·5 metres (100 feet) long. It had a high-pooped, snub-nosed hull. Cook chose it because it was "full built and fit to stow provisions and stores as may be put on board". It was originally built to carry coal, but Sir Joseph Banks had it refitted as a scientific ship for the voyage (see BANKS, SIR JOSEPH, in this volume). Cook sailed the *Endeavour* to Tahiti, around New Zealand, up the eastern coast of Australia, to Java, and then back to Britain. The little ship leaked only once—after running aground at Endeavour River on June 11, 1770. See COOK, JAMES, in this volume.

ENGINEERING INDUSTRY is more highly developed in Australia than in Indonesia, Malaysia, New Zealand, or Singapore.

Australia produces engineering goods worth $A 2,000 million, excluding electrical goods and motor vehicles. Australia has about 8,950 engineering factories. They make such products as hydraulic hoists, air-conditioning equipment, and farm and industrial machinery. Most of the factories are in New South Wales and Victoria. Overseas investment, particularly from Britain and the United States, has played a large part in the development of the industry since World War II. Australia still imports some specialized goods.

Indonesia has developed its engineering industry to some extent but relies mainly on imported goods. Malaysia and Singapore have been trying to develop an engineering industry as part of general plans of industrialization. But most factories merely assemble imported components.

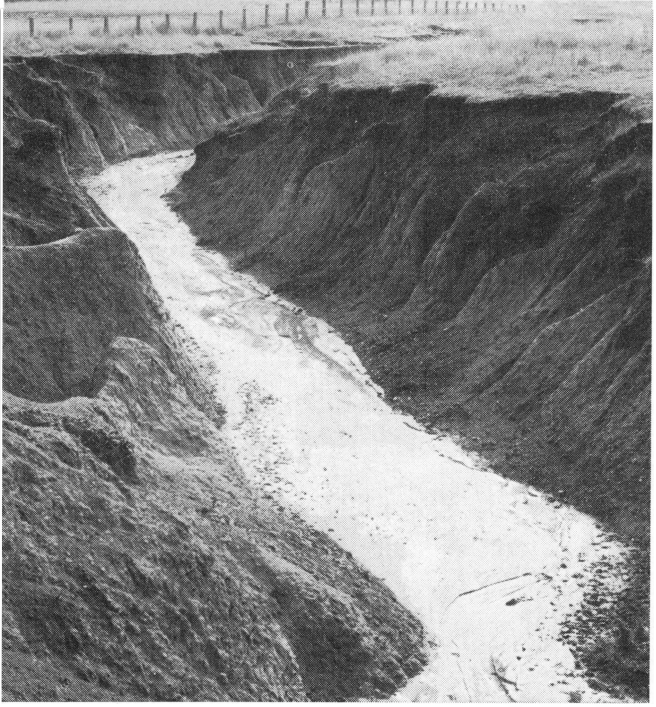
New Zealand has more than 1,000 engineering factories, most of them in Auckland and Wellington. New Zealand produces engineering goods worth $NZ 160 million, excluding electrical goods and motor vehicles. But its range of products is limited. It has to import engineering goods worth about $NZ 100 million.

ERICA (pop. 300) is a local service centre in the Gippsland Highlands of Victoria. The township is located 30 kilometres (19 miles) from Moe on the road to Walhalla and Woods Point. The surrounding district is primarily timber-producing forestland, although there is some agriculture. Erica has a state school, post and telegraph office, police station, public hall, churches, hotel, and stores. There is also a forestry commission area office. Four timber mills are located in the district.

ERN MALLEY was the pen-name used by two poets, James McAuley and Harold Stewart, in a series of poems with which they wanted to test the literary value of a surrealist movement of the early 1940s, called the *Angry Penguins*. McAuley and Stewart sent the poems as a hoax to the editors of the magazine *Angry Penguins*. They deliberately wrote poetry that had no coherent meaning or structure, and chose words haphazardly from many sources. The editors hailed the poems as works of merit and eventually published them. Even after the hoax was exposed, some critics maintained that the poems had value. See also LITERATURE OF AUSTRALIA (Poetry) in this volume.

Engineering Industries in Australasia produce a wide variety of goods, including welded pressure tanks, *below*.

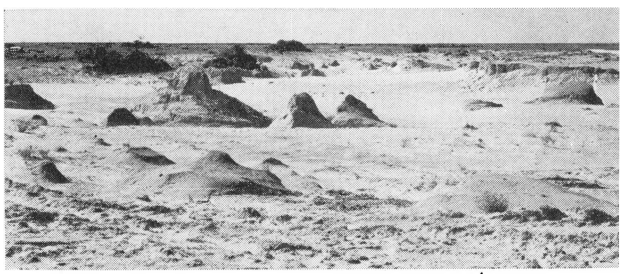
Australian News and Information Bureau



Government Printer, Sydney

Gully Erosion is common in Australia's tablelands. Wind and rain widen and deepen drains and rivers, forming huge gullies that disfigure the land surface.

Sheet Erosion has laid waste large areas of once-productive land in Australia. Wind and rain carry away the top layers of soil, leaving the land bare and nearly useless.



Government Printer, Sydney

EROSION is the wearing away of earth or rock. Wind, water, ice, and air act on earth and rock surfaces, loosening and breaking off small particles. In time, water or wind carries the particles away, exposing a new surface to further erosion.

Erosion is usually a slow process. But unwise use of land can hasten erosion by unnecessarily exposing the top layers of the soil to the action of the weather. Wind and rain carry away the top-soil from high ground. The top-soil is the most valuable part of the soil in agriculture because it contains large amounts of organic matter and plant foods. In this way, erosion can rob a country of one of its most valuable resources. In Australia, Indonesia, Malaysia, and New Zealand, erosion has made thousands of acres of once-productive land completely unsuitable for cultivation or for use as pasture-land.

Causes of Erosion

Erosion in Australia and New Zealand has resulted partly from unsuitable farming methods. Settlers used agricultural techniques that had been developed in the milder climates of European countries. In Europe, most of the arable land is gently sloping or flat and the rainfall is fairly low and reliable. In such mild conditions, the loss of soil from erosion is small. But, in Australia, rainfall is unreliable and storms of high intensity occur in some regions. Vegetation withers during periods of drought, and wind and rain carry the soil away.

In Australia, the lands most severely affected by erosion are the gently rolling arable lands of the wheat belt. Settlers using farming techniques that were unsuited to the soil and climatic conditions of the region hastened the process of erosion. In many areas, water carried away much top-soil and formed gullies in valuable arable lands. *Sheet erosion* and *gully erosion* affect many parts of the tablelands. In sheet erosion, wind and rain wear away the top layers of the soil. In gully erosion, wind and rain widen and deepen drainage lines and water-courses until they form huge gullies.

In pastoral areas with low rainfall, many early settlers overstocked their holdings and allowed pastures to decline. Rabbits also caused much damage by cropping the grass and burrowing in the ground. The wind stripped the scantily covered soil, leaving large, bare areas called *scalds*. Today, prolonged periods of drought cause the vegetation to wither. After severe droughts, the grass needs time to grow again, and pastures can carry fewer cattle. Along the coast, the wind forms sand dunes and blows sand inland, covering large areas and often threatening valuable property.

In New Zealand, early settlers cut or burnt down large forests and converted the areas to pasture-land. Many settlers carelessly burnt large areas of pasture-land to provide a fresh growth of grass. Sometimes, they stocked their land with more animals than the pastures could feed. Overgrazing and deforestation resulted in an increase in the amount of water running off the surface of sloping land, causing periodic flooding. In some areas, the soil became exposed to drying winds, and heavy rains carried it away.

Papua New Guinea, Indonesia, and Malaysia all have thunderstorms during which heavy rain falls. In some areas, the rain carries away the top-soil that has been exposed through cultivation for such crops as pepper, tapioca, pineapples, and rubber. Early rubber planters, hoping for quick profits, destroyed thousands of acres of land by using unsuitable methods. Many rubber planters kept their estates *clean weeded* (free from weeds) as they had seen orchardists do in European countries. As a result, rain and winds tore away the top-soil in many areas. In

Malaysia, early tin miners stripped large regions of forests, exposing the soil to severe erosion.

Preventing Erosion

Land-holders can keep the soil fertile by using their land wisely. They can achieve this aim by using their land for the purpose for which it is best suited, and by managing it in such a way that the soil remains stable and does not become eroded.

In order to reduce erosion, land-holders should cultivate only suitable land. For example, great loss of soil can result from ploughing steeply sloping land. Land-holders should make sure that pastureland is adequately covered with vegetation at all times by controlling the number of cattle and sheep that graze on it. In this way, they can reduce loss of soil through wind and water erosion and increase yields of animal products. Land-holders can also protect their arable land against erosion by sowing legumes, such as clover and medic, as part of their crop-rotation programmes.

Farmers can maintain their land in good condition and prevent erosion by cultivating it in a way that increases its capacity to absorb water. Rain-water should be retained in the soil surface. Sloping land that is ploughed across rather than up and down retains the maximum amount of water. Some farmers plough back into the soil the stubble of such crops as wheat in order to increase its content of organic matter. This practice is called *stubble mulching*. Some land-holders build earthworks to reclaim eroded land or protect sloping land from erosion.

In Australia, each state has a government organization that is responsible for controlling and preventing erosion. The Soil Conservation Service of New South Wales and the Soil Conservation Authority in Victoria are separate organizations, but the organizations in the other states are attached to the state departments of agriculture. Most of the soil conservation work in Australia has been done in New South Wales and Victoria.

The organizations develop techniques for controlling erosion and study ways in which these techniques may be improved. They also give technical advice and help to land-holders. In New South Wales, the Soil Conservation Service leases equipment and operators to land-holders wishing to undertake soil conservation work.

ESPERANCE BAY is in the south-east of Western Australia. In its natural state, it contained one million hectares (2·5 million acres) of heath-plain country, sloping to the southern seaboard. The land is composed of sandy soil overlying gravel, sand, and clay. It was covered with mallee, heath scrub, banksia, and the native Christmas tree. During the 1950s, research workers proved that this land could be developed into one of the largest agricultural areas in Australia. The soil lacked phosphorus, copper, zinc, and, in some areas, molybdenum. These deficiencies were counteracted by adding superphosphate and minor trace elements. Initial crops of subterranean clover, which thrives in sandy soils, gave the nitrogen needed. Today, hundreds of thousands of hectares of former wasteland are sown in crops, or provide pasture for sheep and cattle.

ESSON, LOUIS (1879-1943), did much to develop drama in Australia both as a playwright and as a promoter of repertory theatre. He was the first Australian playwright to write drama that was truly Australian in theme, character, and setting. His full-length plays include *The Southern Cross* and *The Time Is Not Yet Ripe*. His best-known one-act plays are "The Drovers" and "Dead Timber". His full name was THOMAS LOUIS BUVELOT ESSON. He was born at Edinburgh, in Scotland.

EUCALYPT FORESTS make up the majority of the woodland and forest areas of the Australian continent and Tasmania. The various species (kinds) of eucalypts dominate these forests and form a significant part of the *ecosystems* (communities) in which they grow. Eucalypt forests are of two main types—*woodlands* and *sclerophyll forests*.

Woodlands

Mallee Woodlands border desert regions in the south. They grow in poor alkaline soils in areas which receive about 460 millimetres (18 inches) of rain a year. The main *species* are eucalypts called *mallees*. They grow as small trees or tall shrubs, either in thickets or as isolated specimens. They do not make a continuous *canopy* (overhead covering). Taller species, such as salmon gum and gimlet gum, grow with the mallees in Western Australia.

Eucalypt Woodlands grow between the mallee woodlands and coastal forests. These woodlands grow in broad bands, separated from each other by varying distances. Their foliage makes an open canopy, and shrubs or grasses grow beneath the eucalypts. Most of the trees in these areas are bloodwoods, Darwin stringybarks, Darwin woollybutts, and a mixture of boxes and ironbarks.

Sclerophyll Forests

Sclerophyll forests supply 95 per cent. of Australian hardwood timbers. They grow on the coast and highlands of the south-west and east. They grow in conditions of relatively high humidity, reasonably good soils and an annual rainfall of 630 to 760 millimetres (25 to 30 inches). The trees are fairly tall, close together, and form a more or less continuous canopy.

Dry Sclerophyll Forests grow in the less fertile soils, with lower rainfall. In Western Australia, the outstanding species is jarrah. In Victoria and South Australia, messmate and brown stringybark are the main species. In Queensland and New South Wales, the most important species is the spotted gum, with a mixture of scribbly gums, bloodwoods, stringybarks, ironbarks, and ashes. Many leathery, fine, and spiny-leaved plants grow beneath the eucalypts in these forests. They include blackboys, kingia, and cycads.

Wet Sclerophyll Forests grow on more fertile, better-watered soils. Magnificent forests of karri in Western Australia, mountain ash in Victoria and Tasmania, and blackbutt in New South Wales characterize these forests. The canopy is heavy and continuous. Soft leaved plants grow beneath the eucalypts. These plants include tree ferns in the cooler regions.

EUCALYPTS

EUCALYPTS are the most common type of trees in Australia. Australians refer to eucalypts generally as *gum trees*. But people sometimes use the name particularly for eucalypts with smooth bark.

Eucalypts form a large *genus* (group) with more than 600 *species* (kinds). They are native to Australia, but a few species also grow naturally in the Philippines, Malaysia, and in the Pacific Islands. They have been introduced by man to most other countries.

Eucalypts dominate the scenery of the Australian continent and Tasmania. But they are less noticeable in dry inland regions and in rain forests.

Uses of Eucalypts. Eucalypts provide a wide variety of hardwood timbers. They also provide oils, tannins, and nectar for honey. They are used for making paper. But perhaps their most important uses are for shade, windbreaks, and decorative purposes.

Koalas eat the leaves of several species of eucalypts. They prefer those in which the sap is flowing freely. When the sap stops flowing freely, the koalas move to other trees. They choose species with a high content of *cineol*—a substance contained in the oil in the leaves. In Queensland and New South Wales, the main food of koalas is the leaves of the grey gum. They also eat the leaves of the forest red gum, tallow wood, and spotted gum. In Victoria, the main food of the koala is the manna gum tree. See MANNA GUMS in the other Australasian volumes.

Description. Eucalypts include the tallest hardwood trees in the world. Mountain ash and karri trees can grow as high as 100 metres (300 feet). Eucalypts also include the mallees, which are dwarf, many-stemmed, trees common in drier parts of the continent. Eucalypts vary in form from the tall straight trees of the thick forests to the gnarled and twisted snow gums of the exposed mountain tops.

The flowers of eucalypts have the sepals and petals joined together to form a cap called an *operculum*. This cap fits over many of the stamens in the bud. It is pushed off as the flower opens. This cap gives the name *eucalyptus,* which means *well covered*. Many people refer to the fruits as *gum nuts*. They are woody capsules bearing seeds. The capsules of the different species vary greatly in size and shape.

Naturalists can get a fair working knowledge of what type of eucalypt a particular tree belongs to by examining its bark.

Gum Trees is the popular name for smooth-barked eucalypts. Their trunks are clean because they shed their bark every year. By contrast, all other eucalypts keep most of their bark throughout their lives.

Among the best known of the smooth-barked eucalypts are the coastal spotted gum and its relative the lemon scented gum. Other gums include the snow gum and white sallee. The river red gum grows on river banks. It is the only gum known to grow in places right across the Australian continent. The ghost gum grows north of the Tropic of Capricorn. It gets its name because of its ghostly, white, gleaming bark.

Two species are popularly called *scribbly gums*. They grow on the eastern coast of Australia. Their satiny-white bark is marked with scribbles on their trunks. These scribbles are caused by the *larvae* (young grubs) of tiny moths which burrow under the bark and eat the soft new growth leaving visible scars.

Many totally different species of eucalypts are popularly called *red gums* and *white gums* because of the colour of their timber. Other totally different species are called *blue gums* because they all happen to have bluish bark. For example, *Sydney blue gum* is a shaft-like tree with a smooth trunk and branches and a little rough bark at the bottom. It grows in gullies along the whole coastal strip of New South Wales. By contrast, the *yellow gum,* which is also called *blue gum* in South Australia, has smooth, mottled bark and is botanically related to the ironbarks. It grows in dry areas of Victoria and South Australia.

The sugar gum is a tall, spreading, smooth-barked tree when cultivated. But it can be small and twisted when growing in its natural surroundings near sea level in South Australia.

Bloodwoods have rough scaly bark arranged in plates. Most bloodwoods grow along the coast. Some of the best known are yellow bloodwood and red bloodwood. Carbeen, marri, and the magnificent red-flowering gum of Western Australia also belong to this group.

Boxes have finely matted fibrous bark. They grow mainly in dry areas with hot summers and 400 to 750 millimetres (15 to 30 inches) of rain a year. Black box, which is also called *Murray box,* grows on river flats. Yellow box is a fine honey tree. Red box is another member of this group. The coolabah, also spelled *coolibah,* is famous because of the song "Waltzing Matilda". Coolibah box is a close relative. River box is a fairly tall, shapely, spreading tree. It has hard rugged bark on its trunk and smooth branches. River box grows best in low-lying alluvial soils.

Stringybarks and Peppermints have coarse, fibrous bark. They are common between the coast and the edges of the inland plains in eastern Australia. They include red stringybark, white stringybark, and brown stringybark. Messmate stringybark was the first eucalypt ever named. The French naturalist L'Héritier named this species in Tasmania in 1788. Jarrah is a first class timber tree. Peppermint box is another member of this group.

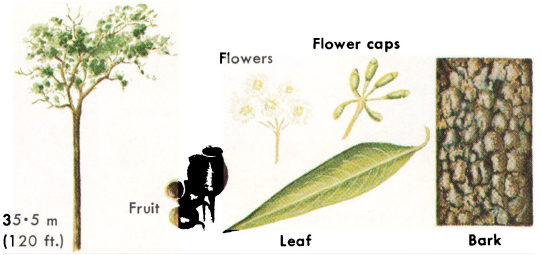
Ironbarks have deeply-furrowed dark grey or black bark. They grow in eastern and northern Australia. None grow in south-western Australia or Tasmania. This group includes silver leafed ironbark, grey ironbark, and mugga.

Blackbutts have rough bark at the base of their trunks. The upper part of their trunks and their branches are smooth. The best-known blackbutt is *E. pularis*. It grows in forest country in Queensland, New South Wales, and Victoria.

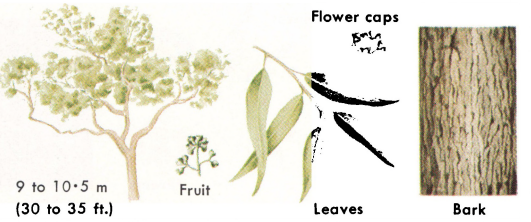
Scientific Classification. Eucalypts belong to the myrtle family, *Myrtaceae*. They make up the genus *Eucalyptus*.

See also FLOWERS and EUCALYPT FORESTS in this volume; TREES in the other Australasian volume.

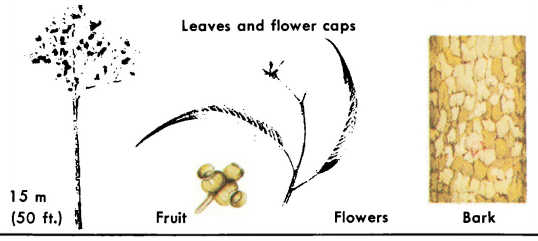
Bloodwood, Red *(E. gummifera)*. Range—Sandstone soils of coastal and mountain regions of Queensland, N.S.W., Victoria.



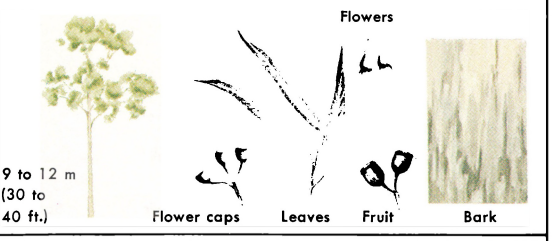
Coolabah *(E. coolabah)*. Range—Black soil plains and water courses in the interior of Qld., N.S.W., S.A., N.T., W.A.



Bloodwood, Yellow *(E. eximia)*. Range—Poor sandstone soils of coast and mountains in New South Wales.

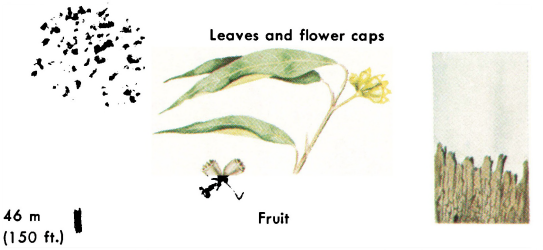


Gum, Blue, South Australian *(E. leucoxylon)*. Range—Heavy alluvial soils in interior of N.S.W., Victoria, and South Australia.



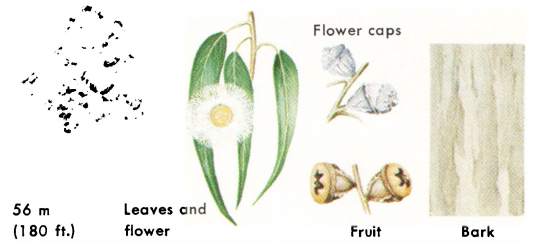
Box, Black *(E. largiflorens)*. Range—Rich interior river flats of N.S.W., Victoria, and South Australia.

Gum, Blue, Sydney *(E. saligna)*. Range—Deep well-drained soils in coastal valleys of New South Wales.

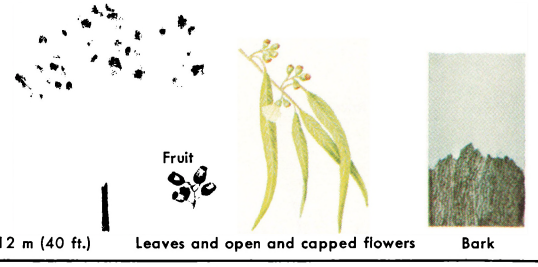


Box, Peppermint *(E. odorata)*. Range—coastal and interior low-rainfall areas of Victoria and South Australia.

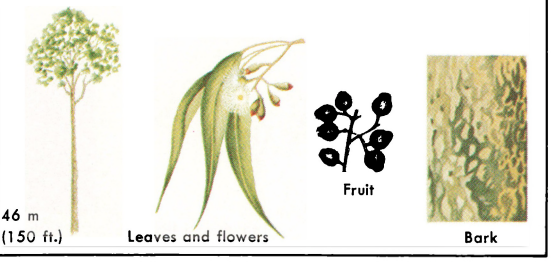
Gum, Blue, Tasmanian *(E. globulus)*. Range—Loamy soils at sea level in southern Victoria and Tasmania.



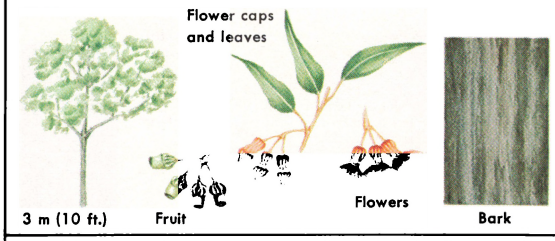
Carbeen *(E. tessellaris)*. Range—Coast and interior of Queensland, N.S.W., Northern Territory, and Western Australia.



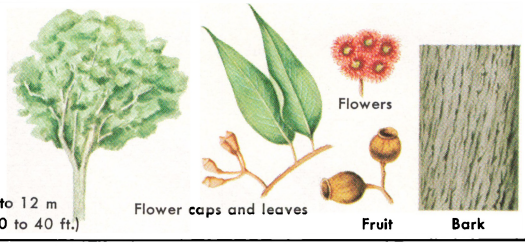
Gum, Spotted, Coastal *(E. maculata)*. Range—Light to heavy soils in coastal areas of Queensland, N.S.W., and Victoria.



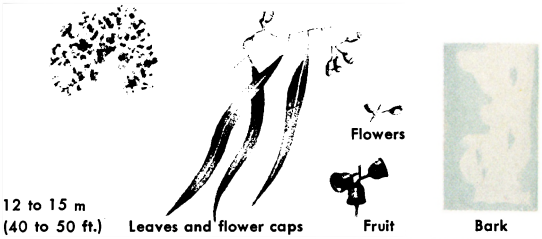
Gum, Coral *(E. torquata)*. Range—Interior regions of Western Australia.



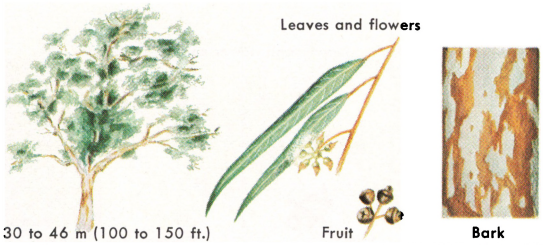
Gum, Red-Flowering *(E. ficifolia)*. Range—Sandy soils of Western Australia.



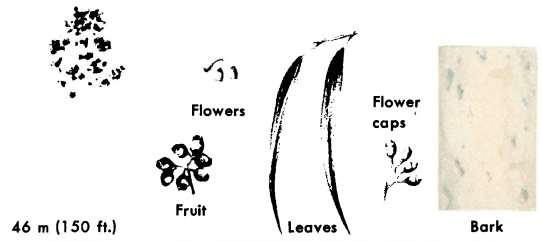
Gum, Ghost *(E. papuana)*. Range—Alluvial flats of Queensland, Northern Territory, and Western Australia.



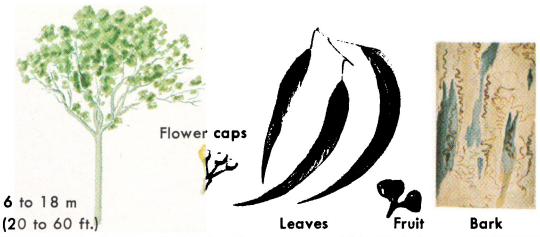
Gum, River Red *(E. camaldulensis)*. Range—Riverbanks and alluvial flats in all parts of the Australian mainland.



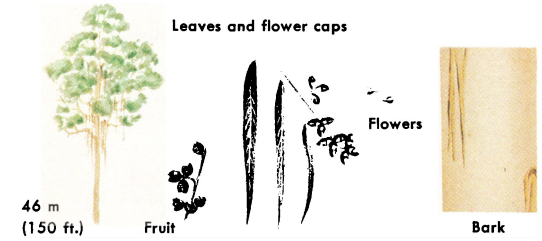
Gum, Lemon-Scented *(E. citriodora)*. Range—Light to medium soils in coastal areas of northern Queensland.



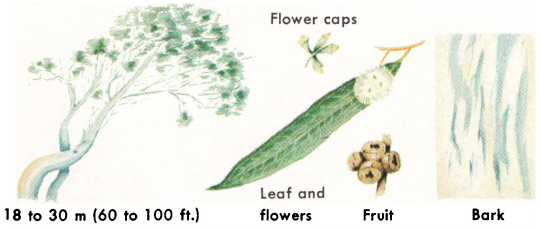
Gum, Scribbly *(E. haemastoma)*. Range—Sandstone ridges in coastal and interior regions of New South Wales.



Gum, Manna *(E. viminalis)*. Range—Mainly in higher valleys in New South Wales, Victoria, South Australia, and Tasmania.

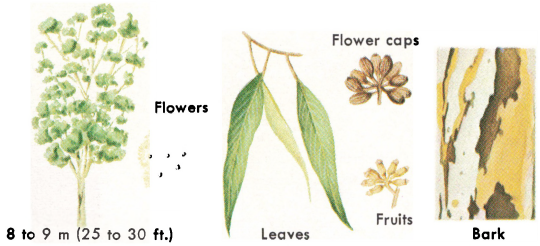


Gum, Snow *(E. pauciflora)*. Range—High areas to the tree line in New South Wales, Victoria, South Australia, and Tasmania.

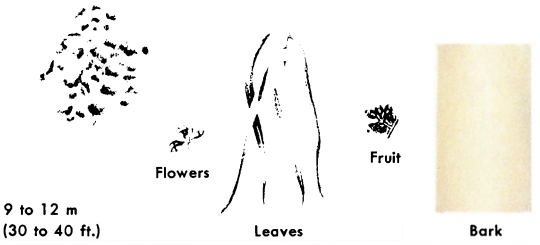


Gum, Peppermint, Narrow-Leafed Black *(E. nicholii)*. Range—Slate and acid granites of the northern tablelands of N.S.W.

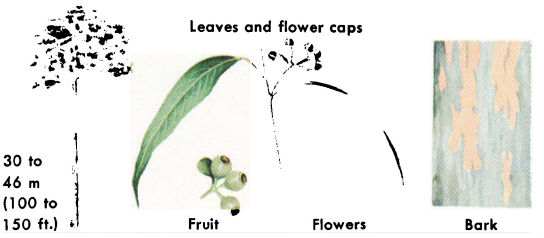
Gum, Sugar *(E. cladocalyx)*. Range—Low-rainfall coastal areas of South Australia. Cultivated trees grow to 30 m (100 ft.).



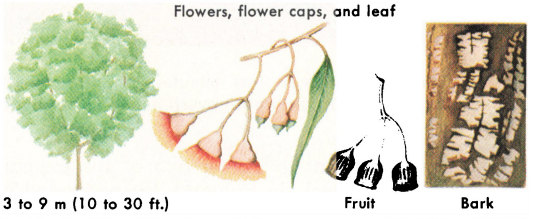
Gum, White, or Wallangarra *(E. scoparia)*. Range—Granite soils of Queensland and New South Wales.



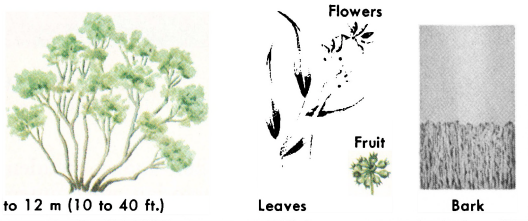
Karri *(E. diversicolor)*. Range—Deep loamy soils of coastal regions of Western Australia.



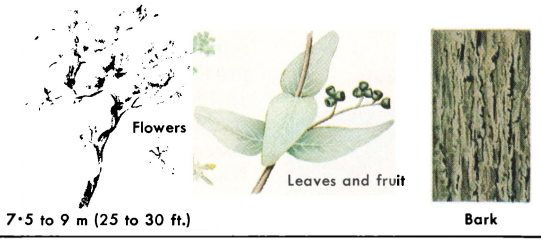
Gungurru *(E. caesia)*. Range—Granite soils of Western Australia.



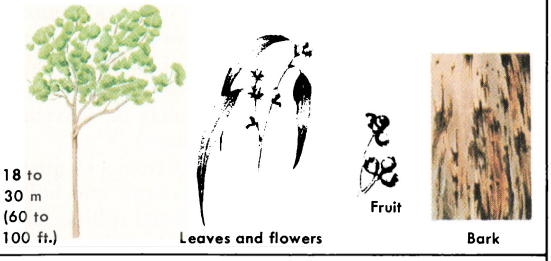
Mallee, Oil *(E. oleosa)*. Range—Red loamy soils or sandy loam in interior regions of N.S.W., Victoria, S.A., and W.A.



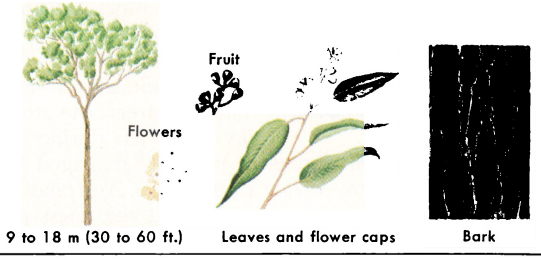
Ironbark, Silver-Leafed *(E. melanophloia)*. Range—Rich loam or sandy clay in interior regions of Queensland and N.S.W.



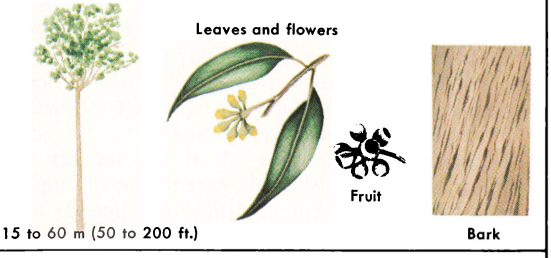
Mountain Ash *(E. dalrympleana)*. Range—Basalt and granite soils of N.S.W., Vic., and Tasmania at 900 to 1,200 m above sea level.



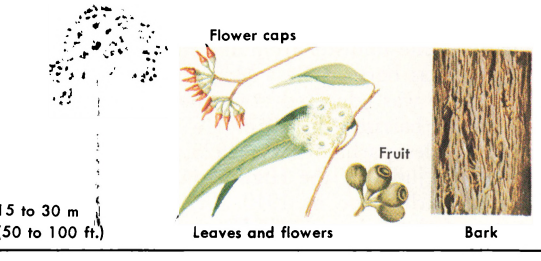
Ironbark, Grey *(E. paniculata)*. Range—Shales or shallow sandy loams of coastal Queensland and New South Wales.



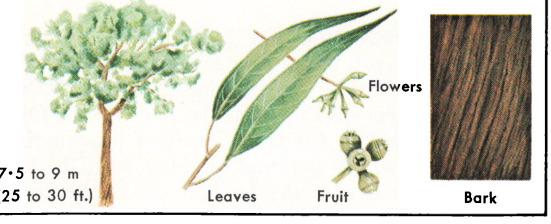
Stringybark, Messmate *(E. obliqua)*. Range—Rich loamy soils in moist, sheltered valleys in N.S.W., Vic., S.A., and Tasmania.

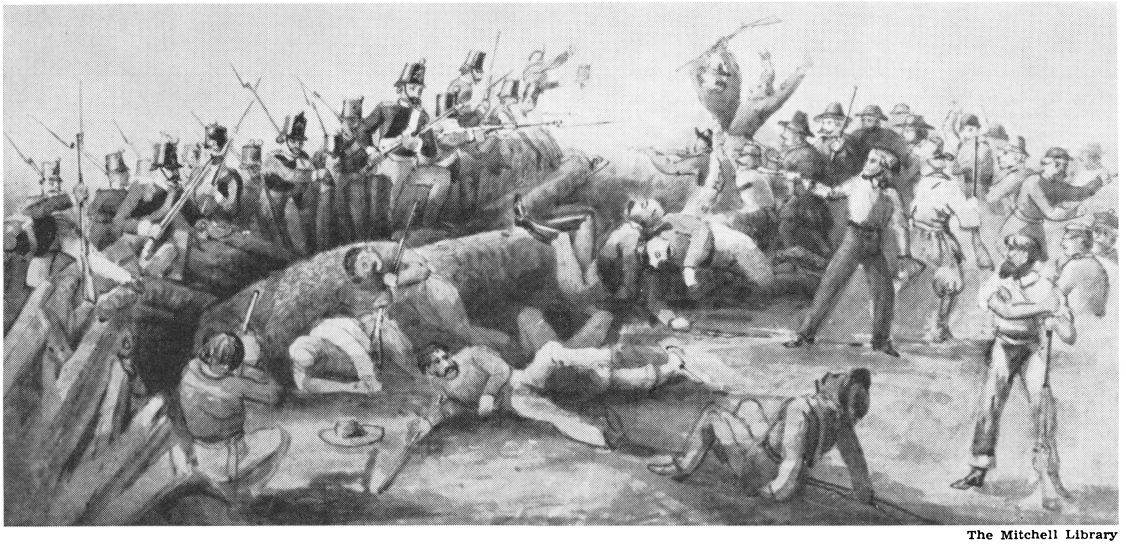


Jarrah *(E. marginata)*. Range—Gravelly soils of the coastal regions in Western Australia.



Stringybark, Red *(E. macrorhyncha)*. Range—Poor acid soils on slopes and tablelands in interior of N.S.W., Vic., S.A.





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The Eureka Stockade Incident lasted only a few minutes. An early artist, J. B. Henderson, recreated the scene of government troops overrunning the stockade.

EUREKA STOCKADE was the best-known incident in the quarrel between the Victorian government and the gold-miners of Ballarat. During 1854, the miners became increasingly restless. They resented having to pay 30*s*. a month for licences to search for gold. They also resented having no political representation. In October, 1854, after several incidents, the miners burnt down the Eureka Hotel. They began holding protest meetings on Bakery Hill, in Ballarat, and burnt their mining licences on November 29 (see BAKERY HILL in this volume).

Governor Sir Charles Hotham sent troops to quell the disturbances. The miners took up arms and built a stockade on Bakery Hill. They hoisted a blue flag with the Southern Cross embroidered on it, taking an oath "to stand truly by each other and fight to defend our rights and liberties."

On Saturday afternoon, Dec. 2, 1854, more than 1,000 miners were in the stockade. But most of them left to sleep in their own tents. Only about 150 men were in the stockade when government troops attacked it at dawn. In the short fight that followed, 30 miners and 6 soldiers were killed.

The government brought 13 of the leaders to trial, but a jury acquitted all except one of them. In 1855, the government abolished the licence fee and introduced a miner's right fee of £1 a year. It also allowed anyone holding a miner's right to vote. Some leaders of the miners, such as Peter Lalor, eventually entered parliament.

See also BALLARAT and GOLD-MINING in this volume.

EVANS, GEORGE WILLIAM (1780-1852), an explorer and surveyor, opened up many valuable areas of land in New South Wales during the early 1800s. In 1813, he discovered the rich Bathurst plains. On his recommendation, Governor Lachlan Macquarie founded the town of Bathurst on May 7, 1815. In 1815, Evans discovered the Lachlan River. Settlers flocked there after his favourable reports. He also joined explorer John Oxley on two of his expeditions. Born at Warwick, in England, Evans landed in Sydney in 1802, and soon became deputy surveyor of the colony. Between 1809 and 1813, he was surveyor of Van Diemen's Land (now Tasmania).

EVATT, HERBERT VERE (1894-1965), was a statesman, politician, and lawyer who gained a world-wide reputation for his approach to world politics. In 1948 and 1949, he was president of the General Assembly of the United Nations. He led many Australian delegations to major world conferences.

H. V. Evatt
Australian Photo Agency

Evatt was also a powerful leader in Australian politics. Historians remember him as a politician who maintained his ideals throughout his career. He stood by his beliefs during the Petrov Affair, even though it probably damaged his career (see PETROV AFFAIR in the other Australasian volume). Many experts consider that the finest period of his career came between 1941 and 1949, when he was attorney-general and minister for external affairs. During this period, he steered Australian foreign policy out of isolation and into world-awareness, especially awareness of Asia. He was deputy prime minister from 1946 to 1949.

Evatt was born at East Maitland, in New South Wales. He was educated at Sydney University, and became a barrister in 1918. He entered the New South Wales parliament in 1925. In 1930, he was appointed judge of the High Court. He entered the federal parliament in 1940. In 1951, he became leader of the Labor party. He retired from politics in 1960 to become chief justice of New South Wales.

EVERLASTINGS is a name given to a number of kinds of daisy-like plants with papery flowers in Australia. Many are small plants with brilliantly coloured or white flowers. They spread over vast areas in inland and alpine areas, particularly in Western Australia.

Scientific Classification. Everlastings belong to the daisy family *Compositae*.

EXAMINATIONS. See EDUCATION IN AUSTRALIA; EDUCATION IN INDONESIA; EDUCATION IN MALAYSIA; and EDUCATION IN NEW ZEALAND in this volume.

EXCLUSIVES. See HISTORY OF AUSTRALIA (The Beginnings [1788-1821]; Colonial Government and Society) in this volume.

EXMOUTH GULF is on the central north-western coast of Western Australia. The town of Exmouth, situated on the eastern side of North West Cape, houses American and Australian employees of the United States Naval Communications Station at North West Cape. This installation provides a very low frequency communication link with vessels of the United States and other fleets in the Indian and Western Pacific Oceans.

EXPLORATION. See AUSTRALIA (map) and HISTORY of AUSTRALIA in this volume. The following explorers have separate biographies in the Australasian volumes:

BASS, GEORGE
BURKE, ROBERT O'HARA
BLAXLAND, GREGORY
CUNNINGHAM, ALLAN
EYRE, EDWARD JOHN
FLINDERS, MATTHEW
FORREST (Family)
HOVELL, WILLIAM
HUME, HAMILTON
LAWSON, WILLIAM
LEICHHARDT, LUDWIG
MITCHELL, SIR THOMAS LIVINGSTONE
OXLEY, JOHN
STUART, JOHN MCDOUALL
STURT, CHARLES
WENTWORTH, WILLIAM

EXPORTS. See TRADE OF AUSTRALIA; TRADE OF INDONESIA; TRADE OF MALAYSIA AND SINGAPORE; and TRADE OF NEW ZEALAND in the other Australasian volume.

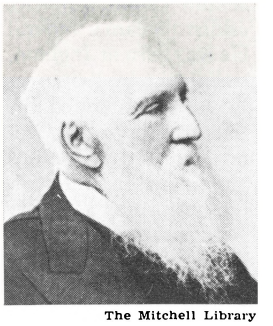
EX-SERVICES ORGANIZATIONS in Australasia provide for the welfare of men and women who have served in the armed services, particularly during wartime. Some accept both men and women members. Some accept members who served in home defence forces. Some accept members from any branch of the armed services. They range in size from the Returned Services League (RSL) in Australia, with about 260,000 members, to smaller organizations for the members of individual fighting units.

The RSL is the chief ex-services organization in Australia. It was formed in Melbourne in 1916. Membership is restricted chiefly to people who have served in Australia's armed services in theatres of war overseas. In addition to its welfare work, the RSL campaigns for adequate federal funds for defence. The RSL operates recreation clubs in most cities and towns of Australia. Another ex-services organization, the Australian Legion of Ex-Servicemen and Women, formed in 1944, includes merchant seamen and people who served in the country's home defence services. Australia has several organizations which give aid to ex-servicemen who have special problems, such as the Limbless Soldiers' Association.

In New Zealand, the chief ex-services organization is the New Zealand Returned Services Association (NZRSA). This organization, also formed in 1916, has nearly 100,000 members. Its conditions of membership and its aims are similar to those of the RSL. The NZRSA and the RSL work in cooperation with each other.

In Indonesia, the Veterans' Legion is the main ex-servicemen's organization. It provides for ex-servicemen's welfare. In Malaysia, the Ex-Services Association of Malaya (ESAM) is the chief ex-services organization. Its members include former members of the armed services of Britain and Malaya.

EYRE, EDWARD JOHN (1815-1901), became famous for his exploration of Australia. Between 1836 and 1840, he conducted many small expeditions in New South Wales, South Australia, and Western Australia. He also pioneered a stock route in Sturt's trail from Sydney along the Murray River to Adelaide. On June 18, 1840, he took charge of an expedition to open up a route between South Australia and Western Australia. Eyre made his way westwards across what is now Eyre Peninsula and along the coast. The harsh conditions of the countryside and the lack of water forced him to divide his party. The South Australian government eventually sent a ship with fresh supplies to Fowler's Bay. After a short rest, Eyre and a man named Baxter continued the journey with three Aborigines. The conditions got worse. Later, two of the Aborigines killed Baxter and took as much food as they could. Eyre and Wylie, the other Aborigine, continued the journey. In June, 1841, they came upon a French whaling ship anchored off the coast, and were able to rest for a fortnight. On July 7, 1841, they reached Albany.



The Mitchell Library

Edward John Eyre

Eyre was born at Hornsea, in England. He migrated to Sydney at the age of 18, but returned to Britain in 1853. He later became lieutenant-governor of St. Vincent, in the West Indies, and of Antigua, in the Leeward Islands. In 1864, he was appointed governor of Jamaica, and created a controversy in Britain by the severe way in which he suppressed a Negro revolt.

See also AUSTRALIA (map) in this volume.

EYRE PENINSULA lies between the Great Australian Bight and Spencer Gulf in South Australia. The peninsula has about 254 to 508 millimetres (10 to 20 inches) of rain a year, and farmers can grow wheat, oats, and hay. Manufacturing industries in the area include fish-canning at Port Lincoln; iron smelting and shipbuilding at Whyalla; and iron-ore mining around Iron Knob. Whyalla and Port Lincoln are the largest towns on Eyre Peninsula. Edward John Eyre explored the peninsula in 1840.

FADDEN, SIR ARTHUR (1895-1973), an Australian politician, was prime minister of Australia from August to October, 1941. He was leader of the Country party until 1958. In September, 1940, the coalition government of the United Australia and the Country parties won only as many seats as the Labor opposition. When R. G. Menzies resigned as prime minister, Fadden succeeded him. He was defeated soon afterwards. He then led the opposition until 1943. Meanwhile, Menzies founded the Liberal party. In the elections of 1949, the Liberal and Country parties formed a coalition, and Fadden became federal treasurer. He retired in 1958. He was born at Ingham, in Queensland. He entered parliament in 1936.

Australian Photo Agency
Sir Arthur Fadden

FAIRBRIDGE, KINGSLEY (1885-1924), founded the Fairbridge farming schools. He was born at Grahamstown in South Africa and educated at Oxford University, where he became interested in child migration to the colonies. In 1909, he formed a society to promote child migration and protect migrants. He migrated to Western Australia and began the first farming school at Pinjarra, near Perth, in 1912. Others were established at Bacchus March in Victoria, at Molong, New South Wales, and in Canada.

FAIRFAX, a well-known Sydney family, has contributed greatly to the publishing industry in Australia. **John Fairfax** (1804-1877) became co-proprietor of *The Sydney Morning Herald* with Charles Kemp in 1841. In 1853, Fairfax bought Kemp's interests in the paper and founded the family partnership. **Sir James Reading Fairfax** (1834-1919), son of John, was a public benefactor. He expanded the company and did much to help hospitals and churches. **Sir Warwick Oswald Fairfax** (1901-), grandson of Sir James, became managing director of John Fairfax Pty. Ltd. in 1930. He became chairman of the newly created public company John Fairfax Ltd. in 1956. **James Oswald Fairfax** (1933-), son of Sir Warwick, became a director of his family's companies in 1957.

FAIRY PENGUINS are the smallest of all penguins in Australia. They are only found around Australian waters from Fremantle, in Western Australia, to southern Queensland. Except when nesting and moulting, they remain at sea feeding on squid and fish. They nest on the coast and on off-shore islands. The birds come ashore after dark and leave at dawn. The Penguin Parade on Phillip Island, Victoria, is a famous tourist attraction. The penguins completely ignore the floodlights as they come ashore.

Scientific Classification. Fairy penguins belong to the penguin family *Spheniscidae* and the genus *Eudyptula*. They are species *E. minor*.

FAMECHON, JOHNNY (1945-), a boxer, won the world featherweight title by outpointing Jose Legra in London in 1969. A member of a famous boxing family, he was born in France and migrated to Australia at the age of five. He began his boxing career under trainer-manager Ambrose Palmer in 1961. He won the Australian featherweight title in 1964 and the Empire title in 1967.

FAR WEST HOME. See DRUMMOND, STANLEY, in this volume.

FARM COVE is a bay on the southern side of Sydney Harbour near Sydney Opera House. It is the site of the Royal Botanical Gardens. The first farm animals were grazed and the first crops were grown there after Governor Phillip landed in 1788. Queen Elizabeth II stepped ashore there when she visited Australia for the first time on Feb. 3, 1954.

FARRER, WILLIAM (1845-1906), bred a variety of wheat that resists *rust,* a fungus that causes great damage to most types of wheat. His discovery enabled farmers to grow wheat in what were once bad wheat-growing districts. His best-known variety, *Federation,* became available to farmers in 1902.

Farrer was born in Westmorland, in England, and was educated at Cambridge University. He settled in Australia in 1870.

FAVENC, ERNEST (1846-1908), was an explorer and author. In July, 1878, he set out with two other white men and an Aborigine to explore the country between Blackall and Darwin. The aim of the expedition was to find out if a railway link between Queensland railways and Darwin was practicable. Favenc discovered good pastoral country.

In 1887, Favenc settled down to literary work, publishing about ten works, including novels, books about Australia and its exploration, volumes of short stories, and verse. He was born in London and migrated to Sydney in 1863.

FAWKNER, JOHN PASCOE (1792-1869), was a co-founder of Melbourne. In August, 1835, he led a party from Van Diemen's Land (now Tasmania) to settle on the shores of Port Phillip Bay. They found a party led by John Batman already settled in the area. Batman died soon afterwards, but Fawkner lived to see the colony gain self-government.

Fawkner was born in London. In 1819, he settled in Launceston, where he established his own newspaper, the *Launceston Advertiser,* in 1829.

FEATHER-TAIL GLIDERS, also known as *pygmy gliders,* are the smallest marsupials able to make gliding flights. Their body length measures only 7 centimetres (2·8 inches). They have gliding-membranes and feather-like tails. They are quite common throughout the Eucalypt forests of eastern Australia, but are rarely seen because they only come out at night.

Scientific Classification. Feather-tail gliders belong to the family *Phlangeridae* and the genus *Acrobates*. They are species *A. pygmaeus*.

FEDERAL-STATE RELATIONS. See GOVERNMENT OF AUSTRALIA in this volume.

FEDERATION. Australia and Malaysia are both federations.

The six Australian colonies became states of the Commonwealth of Australia in 1901. As early as 1889, Sir Henry Parkes urged the colonies to form a federal union. During the 1890s, many attempts to federate failed. Colonial representatives met in 1891, 1893, 1898, and 1899. In 1899, a drafting committee drew up the federal constitution and the Australian people voted in favour of federation. The Duke of York, later King George V, proclaimed the Commonwealth of Australia on Jan. 1, 1901.

Related Articles in the Australasian volumes of WORLD BOOK include:

Deakin, Alfred
Government of Australia
Griffith, Sir Samuel Walker
History of Australia
History of Malaysia
Parkes, Sir Henry
Quick, Sir John
Service, James

FEGEN, FOGARTY (1891-1940), was awarded the Victoria Cross after his death during World War II. On Nov. 5, 1940, Fegen was in command of the armed merchant cruiser *Jervis Bay,* escorting a convoy across the Atlantic. Fegen deliberately attacked the German pocket battleship *Admiral Scheer* to allow the convoy time to scatter. *Jervis Bay* was sunk in this unequal duel, and Fegen went down with his ship. EDWARD STEPHEN FOGARTY FEGEN was born at Chatham, in England. His service in the Royal Navy included training cadets at the Royal Australian Naval College at Jervis Bay (1928-1929).

FEMALE FACTORIES were institutions at Parramatta, Hobart, and Launceston that housed convict women and gave them employment between 1803 and 1845. The government sent three classes of women to the Parramatta factory—those who were not assigned as servants, those who had not been satisfactory as servants, and those who committed crimes after arriving in the colony. Conditions in the factories were harsh. By 1840, almost 1,000 women lived in the Parramatta factory. Most of them were engaged in weaving cloth. After 1845, the building became an asylum for paupers and the insane.

FENNER, FRANK JOHN (1914-), became director of the Australian National University's Centre for Resources and Environmental Studies in 1973. He had served as director of the John Curtin School of Medical Research at the university since 1967. He was a research fellow in the department of experimental medicine at Melbourne University from 1946 to 1948, when he was awarded a Rockefeller Travelling Fellowship. He later became professor of Microbiology at the Australian National University.

Fenner was born at Ballarat, in Victoria. He published several papers on tuberculosis, mousepox, and myxomatosis, and was coauthor of books on the production of antibodies and on myxomatosis.

FENTON, JAMES (1820-1901), was a Tasmanian pioneer and historian. He was born in Ireland and landed in Hobart in 1834. He bought land on the Forth River in 1840. In 1874 he retired from farming and settled in Launceston where he edited the *Daily Telegraph.* His publications include *History of Tasmania* (1884), *The Life and Works of the Reverend Charles Price of Launceston* (1886), and *Bush Life in Tasmania* (1891).

FERGUSON, SIR JOHN (1881-1969), combined a distinguished legal career with that of a bibliographer. He was judge of the New South Wales Industrial Commission from 1936 to 1953 and president of the Royal Australian Historical Society in 1922, 1940, and 1941.

His *Bibliography of Australia,* a monumental work which occupied more than 40 years of research, is a record of all printed matter relating to Australia from 1784 to 1901. The first volume was published in 1941 and the last was completed shortly before his death. He was born in Invercargill, New Zealand, and educated at Sydney University.

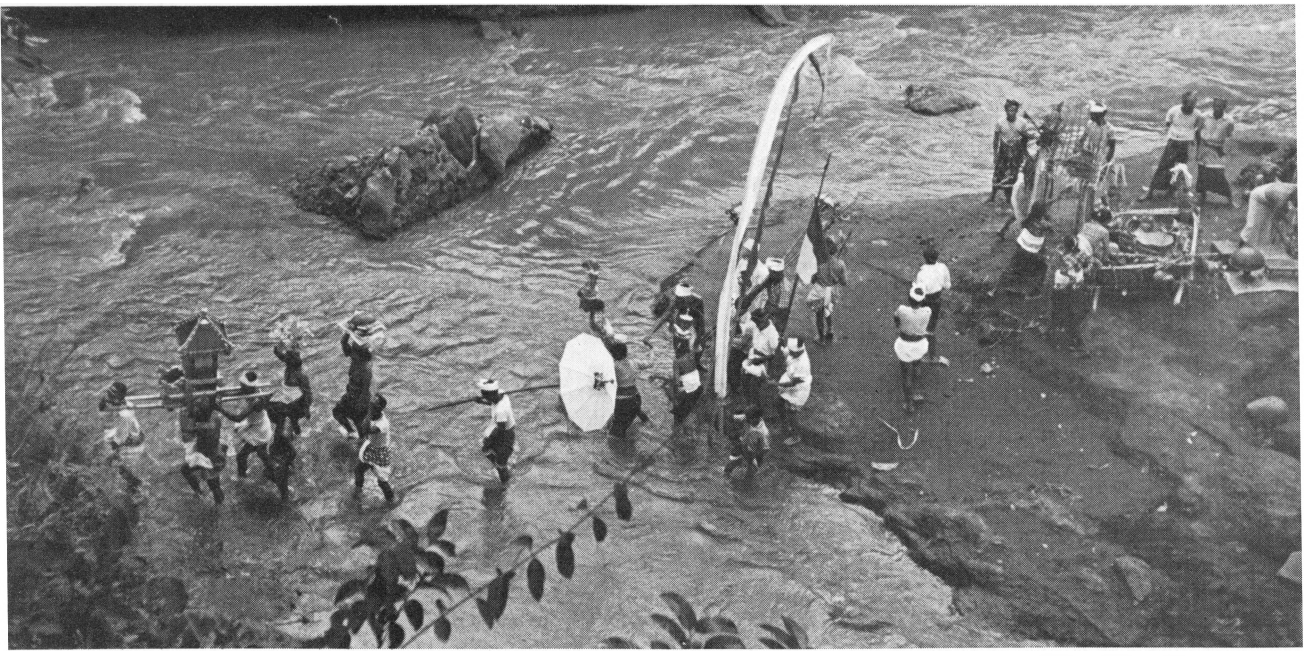
FERNS of many kinds grow throughout Australia, Indonesia, Malaysia, and New Zealand. They thrive mainly in rain forests and temperate forests and along water-courses. New Zealand's rain forests are particularly famous for their ferns and a tree fern or "silver fern" (*Cyathea dealbata*) has received recognition as New Zealand's official badge. The rain forests of Indonesia and Malaysia are rich in ferns. Magnificent fern glades also flourish in the moist coastal gullies of eastern Australia.

Tree Ferns are stately, single-stemmed plants with a head of spreading *fronds* (leaves). They grow up to 24 metres (80 feet) high. Closely related kinds are found in rain forests throughout Australasia. In New Zealand, the silver tree fern grows to a height of from 3 to 6 metres (10 to 20 feet). The undersurface of its leaves has a soft, silvery appearance. The majestic black tree fern, which grows from 6 to 15 metres (20 to 50 feet) high, is found in Australia and New Zealand. The smaller, delicate king fern, reaching about 2 metres (6 feet), is not as common as it used to be, but it is found in Australia and New Zealand. The todeas are smaller tree ferns found throughout the tropical and subtropical rain forests. Perhaps the most beautiful of the todeas is a fern known in New Zealand as *Prince of Wales feathers.* It grows in dense forests and has fronds up to 1.2 metres (4 feet) long.

Epiphytic Ferns grow on other plants, but are not parasitic. Various kinds of staghorns, elkhorns, and bird's-nest ferns are found in all four countries. The dainty filmy ferns are also widely distributed. These beautiful plants, of which there are two main genera, have fragile, sometimes translucent, fronds. In some kinds, the fronds are extremely short. In other kinds, they may be several inches long. Filmy ferns commonly encrust rocks or climb up the moist stems of the rain forest trees and tree ferns. The piri piri, found in Indonesia, Malaysia, and New Zealand, is one of the largest filmy ferns, with fronds up to 305 millimetres (12 inches) long.

Climbing Ferns twine round the trunks of trees or spread themselves over rocks, adhering by their stems. Climbing ferns are found in all four countries. The commonest are the several kinds of climbing polypods, and the delicate lygodium, which grows in Australia, Indonesia, and Malaysia. A smaller kind, *Kaipara,* grows in all four countries.

See also FERN in the main volumes; and FLOWERS in this volume.



George Rodger, Magnum

Balinese Religious Ceremonies include the *melis,* in which villagers carry statuettes representing gods to the nearest river for a symbolic bath.

FESTIVALS in Australia, Indonesia, Malaysia, New Zealand, and Singapore are many and varied because of the variety of peoples, arts, customs, and religions in the area. They include festivals of the arts, such as music and painting, and religious celebrations by Buddhist, Christian, Hindu, Jewish, and Muslim communities. Many towns and cities hold festivals to attract tourists. Some festivals have no more significance than that people like to get together in groups to enjoy themselves.

Arts Festivals include the Adelaide Festival of the Arts, in South Australia. This event, held every two years, has gained recognition throughout the world. Since it began, in 1960, it has become the main cultural festival of Australia. It lasts for a little more than two weeks and costs thousands of dollars to stage. It offers a wide variety of attractions that include programmes of classical music, jazz, opera, drama, and ballet, and displays of painting, pottery, wood carvings, and other arts and crafts. The variety of the festival is one of its most attractive features. The festival has attracted overseas musicians such as the American jazz pianist Dave Brubeck and the London Symphony Orchestra. But music is only part of the festival. Other events include such varied items as yachting, wine-tasting, water ski-ing, and floral displays.

The Auckland Festival, in New Zealand, has grown in importance since the city originally launched it as a tourist attraction. This festival, held every May, is now the cultural highlight of the year in New Zealand. The symphony orchestra of the New Zealand Broadcasting Corporation, the New Zealand Opera Company, and the Royal Christchurch Musical Society all play a major part in the festival. In addition, two or three international musicians take part each year. The art exhibitions and displays of Maori crafts attract large crowds. The festival always offers lighter entertainment such as open-air displays of flowers and lunch-time exhibitions of photography and books.

Dunedin, in New Zealand, also holds a week-long festival in August each year. But it is on a much smaller scale than that of Auckland. The festival includes musical and theatrical productions and exhibitions of paintings and local arts and crafts. Wellington, the capital of New Zealand, usually holds an arts festival every two years.

Religious Festivals. Christian peoples throughout the area celebrate Christmas Day on December 25 in the traditional way, with prayers and worship in churches and chapels. Many people exchange presents, and all families try to be united. Easter, in March or April, is the other main Christian religious celebration. The Roman Catholic Irish community in Melbourne stages one of Australia's biggest and most devout processions each year on St. Patrick's Day, March 17. Led by the Roman Catholic archbishop and other church dignitaries, thousands of Roman Catholics march through the streets.

Jewish festivals celebrated each year throughout the area include *Rosh Hashanah* (New Year) and *Yom Kippur* (The Day of Atonement), in September or October, and Passover, which is celebrated in March or April. See JUDAISM (table, Jewish Feasts and Fasts) in the main volumes.

The Hindus of the Indonesian island of Bali have a religious festival almost every week. Once and sometimes twice a week, the Balinese crowd into temples and shrine courtyards to pay homage to

Australian Festivals include the Bang-Tail Muster in Alice Springs. The name of this festival derives from the former custom of *mustering* (gathering together) cattle, cutting off their tails, and counting them.

Australian News and Information Bureau

their numerous gods. They sacrifice animals and beat drums and gongs as they give thanks to their gods or ask for assistance. The Hindus of Malaysia and Singapore go in crowds to their temples for the festivals of Deepavali and Thaipusam. Chosen people walk on paths of fire with no apparent ill effects. Others have their skin pierced with long needles. They carry heavy religious ornaments over great distances into the temples. The Batu Caves, just outside Kuala Lumpur, are the main centre for the annual Thaipusam festival (see BATU CAVES in this volume).

Muslims throughout Indonesia, Malaysia, and Singapore celebrate Ramadan each year. They fast from sunrise to sunset each day for nearly a month. See ISLAM in the main volumes.

The main Chinese religious festival is held to celebrate the start of the Chinese New Year. It is usually in late January or early February. The celebrations start on the second day of the new moon after the winter *solstice* (see SOLSTICE in the main volumes). Families pray together. They thank the gods for the year gone by. They also celebrate with noisy rejoicing and feasting. They let off firecrackers, light candles, burn joss sticks, and pray for ancestors.

Other Festivals. Two of the biggest Australian festivals are the Waratah Spring Festival in Sydney, held in October, and Melbourne's Moomba Festival. Both began in the 1950s. Both have parades, outdoor art shows, exhibitions of flowers, sporting contests, displays of local arts and crafts, concerts, plays, and theatrical productions by children. Each city chooses a "princess" from among the local girls and she "rules" over the week-long celebrations. Each city has a mile-long procession that includes gaily decorated floats, military and pipe bands, marching girls, clowns, and mounted police contingents. Thousands line the routes through the cities to watch and cheer as the processions go by. See MELBOURNE (picture) in the other Australasian volume.

Other cities hold smaller festivals. In New South Wales alone, more than 40 other cities and towns hold annual festivals. The most popular of these are the Jacaranda Festival at Grafton, the Cherry Blossom Festival at Orange, the Christmas Tree Festival at Singleton, and the Festival of the Snow at Cooma in the Snowy Mountains. Victoria also has a number of annual festivals. Among the most colourful are the Begonia Festival, held at Ballarat early in March each year, and the Spring Floral Festival at Geelong. In South Australia, the wine festival in the Barossa Valley is one of the gayest of Australia's celebrations. The richer the grape harvest, the gayer are the celebrations. At Port Lincoln, in South Australia, the Tunarama Festival marks the opening of the tuna-fishing season. Processions, dancing, and barbecues follow a sail-past by the gaily decorated tuna fleet.

In New Zealand, the Hastings Blossom Festival attracts many visitors each year. It is held at the end of August. Blossoms in the district's orchards are a blaze of colour at this time of year. The festival lasts for a week and ends with an elaborate procession of flower-bedecked floats. Most large New Zealand towns hold spring or summer festivals, many of them flower festivals. The towns include Alexandra, Christchurch, Gisborne, Rotorua, and Tauranga. New Plymouth has a Festival of the Pines. The Nelson Mardi Gras, one of the longest festivals in New Zealand, lasts from December 24 to January 10. The Festival of the Sounds, at Picton, is also held in December.

In Singapore and Malaysia, the moon festival is one of the big events of the Chinese year. The celebrations begin on the 15th day of the 8th moon of the year. City-dwellers join in the celebrations. But it is essentially a time of thanksgiving for the harvests. The Chinese exchange gifts wrapped in red paper. They consider red a lucky colour. They eat spicy *moon cakes* and other delicacies at this festival time.

One of the most unusual festivals is held in Bali. Each year, the Balinese celebrate the Holiday of the Books Festival in honour of the invention of writing. On this festival day, they open no books and write no words.

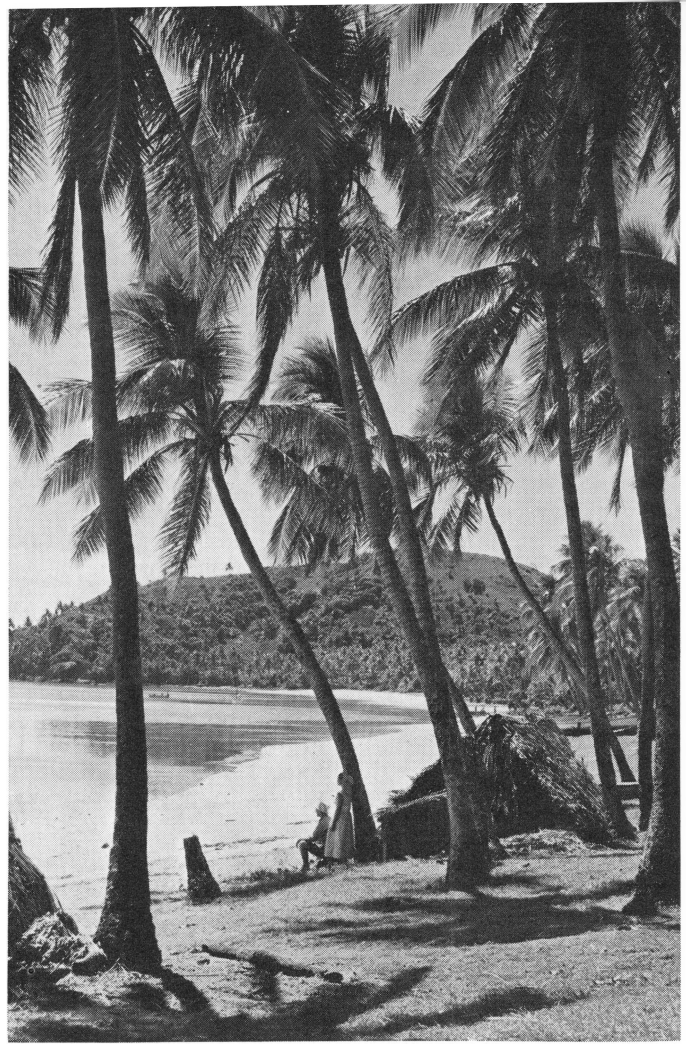
Related Articles in the Australasian volumes of WORLD BOOK include:

Adelaide (Things to See and Do)
Bali
Melbourne (Recreation)
Religion in Indonesia
Religion in Malaysia and Singapore
Sydney
Victoria (Things to See and Do)

FIELD, BARRON. See LITERATURE OF AUSTRALIA (The Development of Poetry) in this volume.

Fiji

Kava is drunk at most Fijian ceremonies. It is carefully mixed to the right consistency in a wooden *tanoa*.



The Yasawa Islands lie off Viti Levu. A cave on one of the islands contains inscriptions of uncertain origin.

Rob Wright

FIJI is a British dominion in the south-western Pacific Ocean, more than 1,600 kilometres north of New Zealand. It includes nearly 350 islands and islets, of which about 100 are permanently inhabited. About half of the people are descended from Indian immigrants, and just under half are Fijian. Most of the people grow crops for a living. Sugar, the chief crop, accounts for about two-thirds of Fiji's exports.

The capital of Fiji is Suva, which lies on the south-eastern coast of Viti Levu, the largest island. Suva has a population of about 65,000, and is one of the largest towns in the South Pacific.

The Islands

Fiji has a land area of 18,272 square kilometres. The two main islands, Viti Levu (10,386 square kilometres) and Vanua Levu (5,535 square kilometres), make up most of this area. Other islands larger than 260 square kilometres are Taveuni (435 square kilometres) and Kandavu (409 square kilometres). Also part of Fiji is the island of Rotuma, about 386 kilometres north-west of Vanua Levu.

The islands of Fiji are mountainous and of volcanic origin. The highest point, Mt. Victoria, reaches 1,323 metres above sea level, and there are 29 other peaks over 910 metres high. Extensive reefs of coral surround the islands.

Fiji lies in the path of the south-eastern trade winds, which blow for most of the year, bringing heavy rain to all eastern and southern coasts and slopes. February is the wettest month. Winter months are drier. Suva has an average annual rainfall of 307 centimetres. Lautoka, in the drier north-western zone of Viti Levu, has 183 centimetres of rain. Suva has a February temperature of about 27° C (81° F) and an August temperature of about 23° C (73° F).

The Life of the People

About half the 512,000 people of Fiji are Indian. About 40 out of every 100 are Fijian. The remainder are Europeans, part-Europeans, migrants from other Pacific islands, and Chinese.

Fijians are dark-skinned Melanesian people. Most of them live in villages. They speak dialects of the Fijian language, which has many similarities to Polynesian. The traditional social organization of the Fijians was local. Each *matanggali* (descent group) formed part of a larger *yavusa*. The yavusas sometimes united in regional confederacies dominated by a local family.

Many of the characteristics of the old social system remain. The practice of *kerekere* (helping one another) is an essential feature of this system. Ceremony plays an important part in the Fijians' lives. The drinking of kava (*yangona* in Fiji) is a vital part of their ceremonial observances (see KAVA in the main volumes). The administration has tried to preserve the traditional way of life, and in particular the communal obligations. Each village is governed by a *turanga ni koro,* who organizes communal activities. A Fijian official known as a *buli* controls a *tikina* (group of villages). He presides over a tikina council and has wide powers over many activities. This system has advantages, but it has tended to suppress individual enterprise. The highest Fijian body is the Council of Chiefs. It gives advice to the government on matters concerning the Fijian population. All Fijians are now Christians.

Indians in Fiji are descended from plantation labourers who were brought from India between 1880 and 1914, and from some free immigrants. The Indians still live mainly in the sugar areas, either as labourers or as tenant farmers. But an increasing number live in the towns, especially Suva and Lautoka, where they have a dominant influence.

The Indians own little freehold land. The Fijians own most of the land under guarantee. As a result, there is more poverty among the Indians than among the Fijians. On the other hand, some of the wealthiest men in Fiji are Indians.

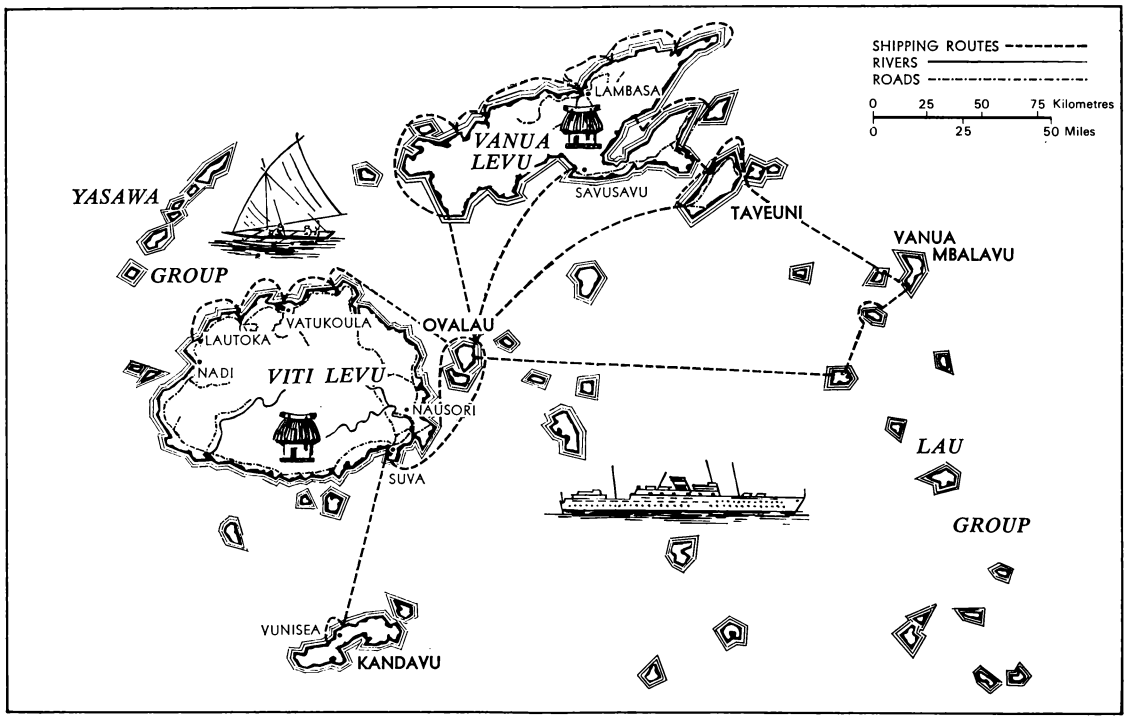
About 70 out of every 100 Indians are Hindus. Most of the rest are Muslims. A few are Christians. Few marriages take place between Fijians and Indians. Day-to-day relations between the two groups are good, but there are underlying fears, due mainly to land ownership, and to the Fijian belief that the Indians will take political control because of their greater numbers.

Europeans number about 14,000. Most of them are New Zealanders and Australians who are employed in tourism, the sugar industry, commerce, transport, and industry. Only about one out of every three Europeans living in Fiji was born there. The European population includes a high proportion of temporary residents. Most Europeans live in towns, around the sugar mills, or at the gold-mining centre at Vatukoula, on Viti Levu.

Part-Europeans and Other Pacific Islanders work mainly in industry, on ships, and in skilled work in agriculture and mining. Many are in government service. Many Rotumans work in the gold-mining industry, and a number of Tongans have settled on the land in south-eastern Viti Levu. But most of these people live in the towns. Their living standards vary, but few of either group are wealthy.

Transport and Communications

Nadi is a major international airport, with daily jet services to Australia, New Zealand, and North America. A local airline provides internal air transport and services to nearby territories. Transpacific liners call at Suva, and there are regular cargo services to Australia and New Zealand. Small vessels, sailing mainly from Suva, provide services to the smaller islands. A road runs along the coast of Viti Levu, and another along the northern coast of Vanua Levu. The sugarcane areas have narrow-gauge rail systems serving the mills. The sugar com-



pany provides free passenger service on the main Viti Levu line.

The *Fiji Times,* an English-language newspaper, is published daily in Suva, and there are weekly papers in English, Fijian, and Hindi. The Fiji Broadcasting Commission controls radio broadcasting. Broadcasts are given in English, Fijian, and Hindi.

Education

Almost 124,000 children attend more than 670 schools in Fiji. Most of these schools are primary schools, provided by the government and by a variety of organizations, including Christian missions and voluntary committees supported by government subsidies. The government trains primary school teachers for its own and committee schools, and New Zealand regularly sends teachers to Fiji. The committees maintain the majority of schools. Fiji has only a few unsegregated primary schools. After the fifth grade, lessons are usually in English. Nearly 13,000 pupils attend secondary schools and technical and teacher training institutions.

Fiji also has agricultural colleges and the important Fiji School of Medicine, which trains medical practitioners from a number of Pacific territories. The University of the South Pacific near Suva accepts students from other Pacific islands as well as from Fiji. The university has about 300 students.

The Work of the People

Agriculture. The export economy of Fiji depends mainly on sugar and coconuts. Sugar is grown all along the coastal lowlands of the dry north-western side of Viti Levu, and around Lambasa in Vanua Levu. Coconuts are grown mainly on Vanua Levu and the outer islands. Other crops include bananas, cacao, pineapples, citrus fruits, tobacco, and rice.

Livestock have been important in Fiji since World War I, and a dairying industry has been established in south-eastern Viti Levu, mostly on European-owned farms. Butter is the main product.

Mining and Industry. Apart from a little manganese, gold is Fiji's only important mineral. It is produced almost wholly at the Emperor Mine at Vatukoula, on Viti Levu. Production amounts to about $F 3,200,000 a year. The mines employ about 1,500 people. The industry has experienced considerable difficulty, and the government has paid subsidies to keep the mines in production.

The most important industrial activity is the processing of sugar at the sugar mills at Mba, Lambasa, Lautoka, and Penang. Sugar production exceeds 300,000 tons in good years. The industry employs more than 20,000 persons, including about 15,000 farmers. In March, 1970, the Colonial Sugar Refining company, which runs the sugar industry, announced that it would withdraw from mill operations in 1972. Fiji has two copra mills. One mill produces coconut oil for export. The other makes soap for local use. Other industries include a cement works, a brewery, and two cigarette factories.

Trade. In the late 1960s, Fiji's imports were just in excess of its exports. The combined trade had a value of more than $F 116,000,000. Sugar makes up about two-thirds of the exports. Copra and gold are the only other commodities worth more than $F 2 million a year. Britain takes over 40 per cent. of Fiji's exports and provides less than 25 per cent. of its imports. Australia supplies almost 30 per cent. of Fiji's imports and Japan supplies 10 per cent.

Things to See and Do

Fiji attracts many tourists, because of its position on transpacific sea and air routes. Income from the tourist industry has risen to about $F 16,000,000 a year. Suva, Nadi, and a number of beach resorts on the southern coast of Viti Levu have first-class hotels. There are also hotels on some of the other islands.

At a few places, tourists can see the "Fijian way of life", with its ceremonial yangona-drinking and dancing. But, for most tourists, the attractions of Fiji are the comfortable hotels, the good swimming, and the duty-free shops in Suva and Nadi.

Government

Fiji has a dominion form of government. Like Australia and New Zealand, it has a governor-general. It also has two houses of parliament—Senate and House of Representatives—and a Prime Minister presiding over a cabinet. The Queen is the head of state of Fiji.

Fiji was a British colony until Oct. 10, 1970. Earlier that year, members of the Legislative Council held constitutional discussions in London. They decided to accept dominion status and to hold new general elections in 1971, after achieving dominion status. They also agreed that, after the 1971 elections, Fiji would appoint a Royal Commission to seek the best way of holding future elections, and the method of electing members. It would investigate, for example, whether Fiji should have a single electoral roll for all voters, or to continue the communal rolls. The 1971 elections were to be held with both communal and national rolls. The House of Representatives is composed of 12 Fijian, 12 Indian, and three general seats on the *communal roll,* and 10 Fijian, 10 Indian, and five general seats on the *national,* or *cross-voting roll.* The 22 members of the Senate were to be nominated as follows: eight by the Great Council of Chiefs, seven by the Prime Minister, six by the Leader of the Opposition, and one by the Council of Rotuma. Provision was made for an Ombudsman.

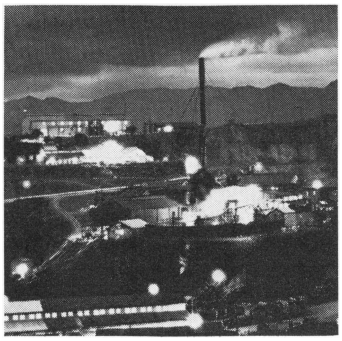
There is a system of district commissioners and local government administering local affairs, with the election of some of the councils.

Legal System. Justice is administered by the Supreme Court and magistrates' courts. The English legal system is followed, with modifications enacted by the House of Representatives. A Court of Appeal was instituted in 1949. A police force of about 1,800 keeps order.

Health Services. Fiji is unusually healthy for a tropical country. It is quite free from malaria. Medical services are good by Pacific standards. Fiji has about 75 fully qualified medical and dental officers, 85 nursing sisters, 120 locally trained assist-

Rob Wright

Sugar is the basis of the Fijian economy. Most of the workers on the sugar-cane estates are Indians, descendants of workers taken to Fiji between 1880 and 1914.



Bananas are cultivated throughout the islands. Much of the crop is transported by river on bamboo rafts.

Gold is mined on Viti Levu. A gold rush began in 1932, but today only the Emperor Mine still operates.

ant medical officers, and 500 locally trained nurses. Suva has an excellent central hospital. Regional hospitals are located at Lautoka, Lambasa, and Levuka, and there are about 14 other hospitals. The colony also has specialized leprosy, mental, and tuberculosis hospitals. Local sanitary authorities control sanitation in towns and settled areas.

History

Man first arrived in Fiji much later than in nearby Pacific territories. Radiocarbon dating suggests that Fiji was inhabited no earlier than 2,000 years ago. The Fijians are Melanesians, who probably migrated from the east. They have mingled to some extent with later Polynesian migrants, and have had close contact in historical times with Tonga.

Abel Tasman sighted some islands in the Fiji group as early as 1643. But the first European navigator to sail through the group was William Bligh, in the course of his open-boat voyage to Timor after the *Bounty* mutiny in 1789 (see BLIGH, WILLIAM, in the main volumes).

From the beginning of the 1800s, many Europeans came into contact with Fiji—first, traders seeking *bêche-de-mer* (a sea slug used for food), and then the sandalwood traders who visited Vanua Levu in considerable numbers. By the beginning of the 1800s, a number of large warring confederacies had formed in eastern Fiji. With the aid of some traders and beachcombers, and particularly of King George of Tonga, Cakobau of Bau established himself as the paramount ruler of eastern Fiji by 1855. Wesleyan missionaries arrived from Tonga in 1835. During this period of contact with Europeans, the Fijian wars were at their fiercest. After Cakobau's victory, peace came to the islands. Christianity became firmly established, and cannibalism virtually ceased.

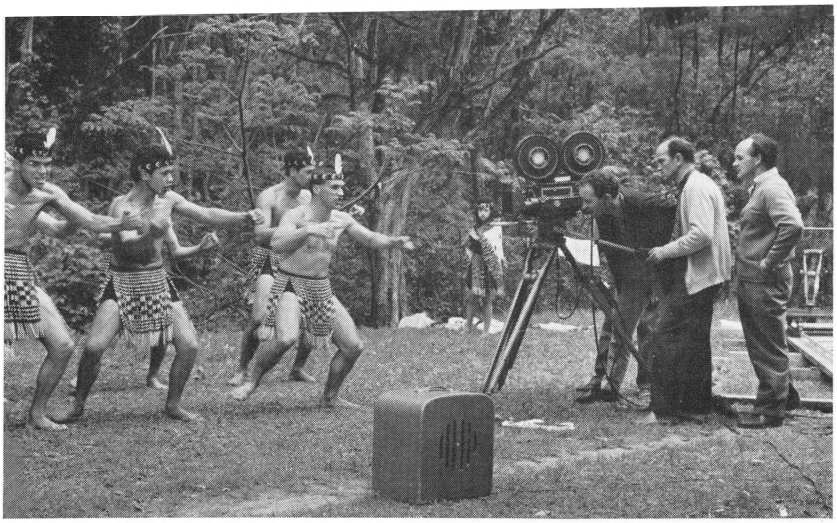
In the 1850s, settlers from Australia began to take over considerable tracts of land in Fiji for cotton planting. In 1858, W. T. Pritchard arrived as the first British consul. He negotiated a Deed of Cession with Cakobau, but the British government repudiated it. Tongan penetration continued, and, in 1867, the Tongan Prince Ma'afu set up a new confederation in northern and eastern Fiji. After a period of chaos, a group of traders at Levuka set themselves up in 1871 as an administration under Cakobau's nominal authority. In 1874, when bankruptcy threatened this administration, the British accepted a new offer of cession, and Fiji became a Crown colony. The first governor, Sir Arthur Gordon, established order and eventually brought the whole group of islands under British control.

Sugar planting began, and Gordon organized the immigration of indentured Indian labourers to work on the plantations. The Fijian population declined. Further difficulties arose when the indenture system ceased to operate during World War I, and when all unexpired labour contracts were finally cancelled in 1920. The sugar plantations were then broken up into smallholdings.

During the inter-war years, Fiji made little economic progress, though social conditions improved steadily. Rapid economic and social advances have taken place since World War II. Fiji became a dominion on Oct. 10, 1970. The chief minister and leader of the Alliance party, Ratu Sir Kamisese Mara, became the first prime minister of the newly independent country.

See also FIJI in the main volumes; MARA, RATU SIR KAMISESE; MELANESIANS; POLYNESIANS; and SUGAR INDUSTRY in the other Australasian volume.

FIJI AIRWAYS. See AIR TRANSPORT (Air Pacific) in this volume.



Lloyd Cornish, courtesy N.Z. National Film Unit

A Film Crew, on location in New Zealand, plays a pre-recorded sound-track to a group of performers, who synchronize their movements with the sounds.

FILM INDUSTRY. Indonesia, Malaysia, and Singapore have flourishing film industries, with large, well-equipped studios that are able to make feature films attracting big audiences. But most of these films are made solely for local audiences, and few people in English-speaking countries see them. Australia and New Zealand have smaller film industries, making mainly documentary films and films and advertisements for television.

In all countries, a local film industry helps the people of the country to see their identity as a nation. Film-makers in both Australia and New Zealand try to express the individuality of their countries in films. Many Australian films feature outback farmers and Aboriginal station hands. They show the distinctive features of the continent—the kangaroos, wallabies, and koalas, the vast, empty deserts, and the isolated sheep stations. Most Australians live in big cities, but Australian films tend to show them as hardy, enduring, outdoor people. Films made in New Zealand stress the varied and breathtakingly beautiful geographical features of the islands. Many New Zealand films emphasize the racial harmony and legal equality of the Maoris and Europeans.

Documentary Films are not made primarily for entertainment, but have a serious aim of providing information and education. A documentary film shows its audience various aspects of a real subject from a certain point of view. Most documentary films deal with such subjects as agriculture, industry, social welfare, health, travel, and education. Various organizations pay for documentary films, including governments, official and semi-official bodies, and industrial and commercial organizations.

In Australia, the Commonwealth Film Unit makes many government films. It is part of the Department of the Interior. Two newsreel companies, *Movietone* and *Cinesound,* also make government and other sponsored documentaries. Other documentary production companies, such as *Supreme Sound* and *Artransa Park,* have developed mainly to supply films for television.

The Indonesian government controls all documentary-film production in Indonesia. Two of the largest film studios in Jakarta, *Perfini* and *Persari,* were closed in 1961. The government-owned PEN studios re-employed their staffs.

The Malaysian government's documentary films are produced by *Filem Negara,* which used to be the government-owned Malayan Film Unit. Filem Negara also produces films sponsored by commercial and industrial organizations. Five companies make sponsored documentary films in Singapore. The biggest is *Cathay Film Services,* which makes many films for government and other sponsors.

The National Film Unit of New Zealand is a division of the Tourist and Publicity Department. It makes all the government's documentary films. The largest producer of documentary films sponsored by semi-official organizations and by commercial firms is *Pacific Films.*

Feature Films are made for entertainment. The people who pay for their production hope to get their money back from audiences paying for seats in cinemas. Australia had a flourishing feature-film industry before World War II, but, since the war, few features have been made. Producers have made experimental feature films that were not shown publicly. Apart from these films, Australian companies made only three features between 1960 and 1966. They were Charles Wolnizer's *They Found a Cave,* Roger Mirams's *Funny Things Happen Down Under,* both of which were children's films, and Michael Powell's *They're a Weird Mob.*

AWARD-WINNING FILMS

Films from all the countries have been entered in international film festivals. Many have gained awards, including the following:

140 Days Under the World (New Zealand, 1964) is a graphic study in colour of men at work in the Antarctic. It was made by the National Film Unit, and won nomination for an Academy Award at Hollywood.

From the Tropics to the Snow (Australia, 1964) is an imaginative colour film about Australia. It was made by the Commonwealth Film Unit, and won the 1965 Australian Film Institute Gold Medal for its "wit, intelligence, imagination, and technical brilliance".

Happy Homes (Singapore, 1964) is a documentary film dealing with housing. It was made by Cathay-Keris. It won the Golden Harvest Award at the 1964 Asian Film Festival.

Runaway (New Zealand, 1964), a feature film directed by John O'Shea, was distributed in many countries. It was shown at the 1965 Commonwealth Film Festival in London.

The Indonesian government encourages producers of Indonesian films, who make more than 30 features a year. The government strictly censors all films, and discourages the showing of American films.

A number of feature films are made in Malaysia each year. *Shaw Bros.* owns a studio in Kuala Lumpur where it makes about four films a year in the Malay language. Singapore has a much larger industry. Its two major studios are *Cathay-Keris,* which is part of a large commercial group, and *Malay Film Productions,* which is owned by Shaw Bros. Both organizations not only finance and produce Malay-language feature films, but also own chains of cinemas in Malaysia and Singapore. The total output of both studios is about 20 feature films a year. Cathay-Keris also lets studio space and facilities to independent producers who make about five Chinese-language films a year. They are distributed to Chinese communities in various parts of Asia and the South Pacific.

New Zealand has never had an established feature-film industry. In the period before talking pictures, Rudall Hayward produced some epic feature films about pioneering days and the Maori Wars. In 1952, Pacific Films produced a film called *Broken Barrier* that dealt with race relations. The same company produced John O'Shea's film *Runaway* in 1964, and his musical *Don't Let It Get You* in 1966.

See also SHAW (family) in the other Australasian volume; MOTION PICTURE in the main volumes.

FINCH, PETER (1916-), a brilliant Australian actor, played principal roles in most Australian and British theatres. His full name is PETER INGLE-FINCH. He was born in London, but moved to Australia at an early age. He first appeared on the stage in 1936 in *While Parents Sleep.* In 1949, Sir Laurence Olivier persuaded him to go to London, where he achieved immediate success. Critics acclaimed his acting in *Daphne Laureola* in the same year. Finch became one of the leading actors in the world, and starred in many films, including *A Town Like Alice.*

Warner Bros.

Peter Finch

FINGLETON, JACK (1908-), a New South Wales cricketer, was an opening batsman who played for Australia in 18 test matches against England and South Africa. In these matches, he scored a total of 1,189 runs at an average of 42·46 runs an innings. In a match against England in 1937, he partnered Donald Bradman in a sixth wicket stand of 346 runs—an Australian record for a sixth wicket partnership. Fingleton was born in Sydney. He first played for Australia in 1931, against South Africa. In 1936, he scored four successive test match centuries—three against South Africa and one against England. After retiring, he became well known as a cricket writer and commentator. See also CRICKET in this volume.

FIORDLAND is an area on the south-western coast of the South Island of New Zealand. The coast is deeply indented by *fiords* (sounds), including the famous Milford Sound. The area has a population of about 1,000, but only about 50 are permanent residents. Much of Fiordland has hardly been explored because the country is so rugged. The mountains are covered in dense forest. As much as 6,350 millimetres (250 inches) of rain falls in some years. The Fiordland National Park contains more than 12,328 square kilometres (4,760 square miles) of magnificent scenery.

FIRE STICKS. See ABORIGINES (Providing Fire) in this volume.

FIRST FLEET set out from England in 1787 to establish the first convict settlement in New South Wales. The eleven ships included two King's ships, H.M.S. *Sirius and* H.M.S. *Supply;* six transports, the *Alexander, Charlotte, Friendship, Lady Penrhyn, Prince of Wales,* and *Scarborough;* and three storeships, the *Borrowdale, Fishburn,* and *Golden Grove.*

Historians disagree on the exact numbers involved, but most agree that 1,487 people sailed from England. They included 759 convicts and 13 children of convicts; 206 marines and 46 members of their families; 20 officials; 210 seamen of the Royal Navy; and 233 merchant seamen. On the voyage, 23 convicts died and six children of convicts were born, though only four survived.

The convicts were kept securely locked, bolted, and barred below deck under constant watch of armed guards. They were provided with hammocks, mess tables, and stools. Their food allowance was two-thirds that of seamen in the navy. The fleet carried enough food for the journey and took on fresh water at ports of call and whenever rain fell. The ships also carried enough supplies to last the settlers for two years, or until they could find their own sources of supply. They carried such livestock as cattle, goats, pigs, poultry, and sheep, and bought many plants and seeds at the Cape of Good Hope.

The fleet sailed from Spithead on May 13, 1787, stopping for a week at Santa Cruz de Tenerife in the Canary Islands, for a month at Rio de Janeiro, and for a month at Table Bay on the Cape of Good Hope. The ships stayed within sight of one another for the first six months. Then the *Supply, Alexander, Scarborough,* and *Friendship* went ahead to prepare a landing place, stopping briefly along the southern coast of Tasmania. The *Supply* anchored in Botany Bay on Jan. 18, 1788, the next three ships on Jan. 19, and the rest of the fleet on Jan. 20.

Arthur Phillip commanded the fleet, with John Hunter as second captain in the *Sirius* and Henry Lidgbird Ball commanding the *Supply.* Many of the officers and civilians who sailed in the First Fleet played important parts in establishing the new colony. They included Phillip; Hunter; David Collins, the judge-advocate; Richard Johnson, the chaplain; and two other officers, Philip Gidley King and Watkin Tench.

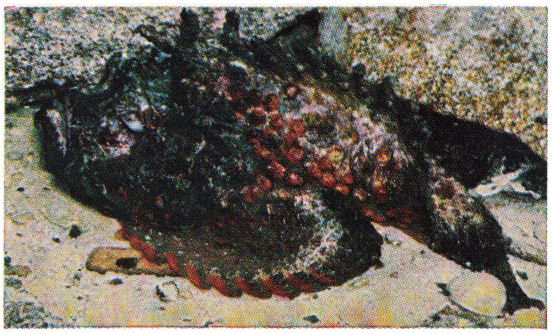
See also SIRIUS (picture) in the other Australasian volume.

FISH

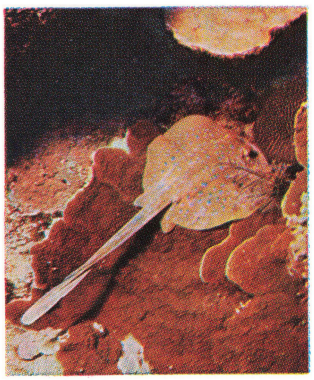
Poison Puffer
Gert D. Wolff

Unless otherwise stated, all photographs with this article are by Allan Power.

Butterfly Cod

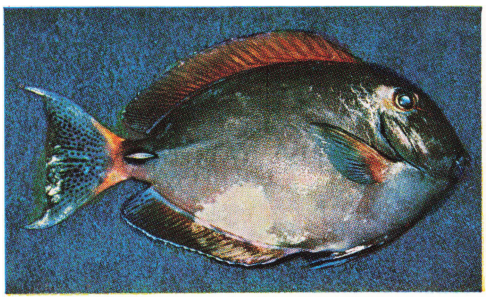


Keith Gillett
Stonefish



Blue-Spotted Lagoon Ray

Surgeon Fish
Keith Gillett



FISH exist in tremendous variety in Australasian waters. The tropical areas, particularly around the Malay Archipelago, probably have more kinds of fish than any other part of the world. These mainly shallow seas form the heart of the great tropical areas of the Indian and Pacific oceans. They seem to have been ideal for the evolution of an amazing number of colourful and, in many cases, wonderfully shaped fish. Many cool-water fish live in the waters near southern Australia and New Zealand. The great West Wind Drift current distributed their ancestors in the waters around the subantarctic islands and the tips of the continents of the Southern Hemisphere.

Fish are a vital source of protein food to the people of Australasia. In the tropics, tens of thousands of families rely on the sea for much of their food, and fishing has become a highly skilled occupation. In Australia and New Zealand, all the main cities are near the sea, and there also fishing is of great importance. In addition, many people enjoy fishing as a sport or pastime.

A number of species of fish in Australasian waters are harmful or dangerous to man. Bathers fear attacks by *sharks* (see SHARKS in the other Australasian volume). Large *groupers*, which weigh up to 270 kilograms, may also attack people, and the large *barracudas* are extremely dangerous. But far fewer people die from shark attacks than from poisoning by *toad*, or *puffer fish*, or by the closely related *porcupine fish*. The bodies of these fish contain deadly poisonous alkaloids. One species of poisonous fish, common in tropical and subtropical waters, is the *deadly death puffer*. In this fish, the poison lies in the skin, sex organs, liver, and intestines.

Many species of fish that are normally edible may, in some cases, contain poisons that cause an illness called *ciguatera*. It may be fatal. Experts believe that the poison may be in the algae that some fish eat. Ciguatera is rare. The fish most commonly causing it include *red snappers, surgeon fish, red mullets, trunk fish, trigger fish, barracudas,* and some *trevallies.*

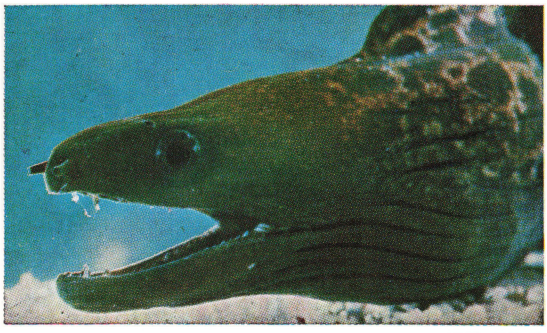
Some fish have poisonous spines. *Stonefish* are among the most dangerous of these fish. Stonefish are common in many tropical waters, and match their surroundings so well that a person may easily step on one in shallow water. Stonefish have sturdy spines in their *dorsal* (back) fins, and, on either side, poison sacs. These sacs break and pour poison into wounds caused by the spines, resulting in almost unbearable pain and even death. People may get less severe, but still dangerous, stings from other fish of the *scorpion fish* group, particularly *firefish,* or *butterfly cod, fortescues,* and freshwater *bullrouts.* The strong tail spines of *sting rays* are coated in poisonous mucus, and may cause severe wounds.

Salt-Water Fish

Coral-Reef Fish. The variety of fish of coral reefs provide a sight more colourful even than tropical butterflies or birds. Hundreds of species may live over a small area of reef, competing with each other for food, feeding on each other, sheltering in coral crevices from the same enemies, or even picking parasites off each other. Along the edge of the reef, *barracudas, red snappers,* and *trevallies* hunt. They, in turn, are hunted by sharks. Sharp-fanged *moray eels* and *groupers* lie in wait in holes and caves for unwary creatures. *Damsel fish, moorish idols,* and many species of *butterfly fish* hover about the coral, feeding on plankton and small creatures but ready to dart for cover when necessary.

Blue-striped *cleaner fish* entice other fish into their "cleaning" areas. They work over the scales of the other fish, and even inside their mouths and gills, in search of the small parasites on which they feed. Small *anemone fish* dart out to feed, and then go back among the tentacles of sea anemones for protection. In some unknown way, these fish are immune to stings that would kill other small fish.

Coastal Fish. Most of the world's great commercial fishing grounds are in water less than 91 metres deep. *Flatheads, John Dories, nannygais, red rock-cod,* and many other species live on the sea-bed in shallow water. Along the coast in cool waters, fishermen may catch *tailors, mulloways, teraglins, barracoutas, yellow-tail kingfish, snappers, Australian salmon, luderick, morwongs,* various species of *mullet,* and *wrasse,* or *parrot fish.* In the tropics,



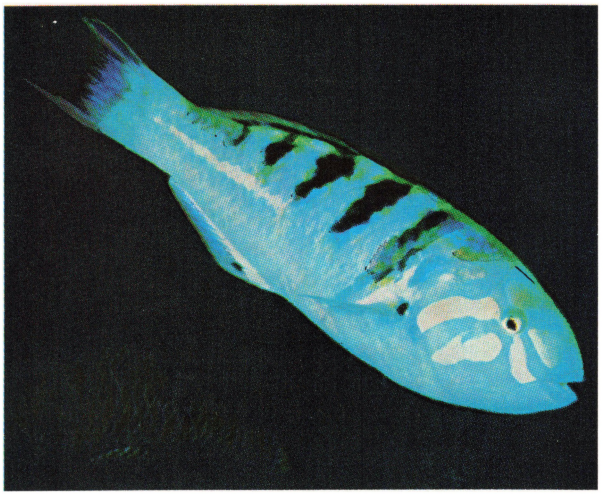
Keith Gillett

Moray Eel

Butterfly Fish

Cleaner Fish on Chinaman Fish

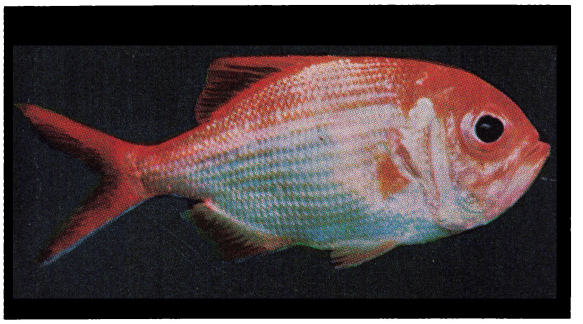
Anemone Fish

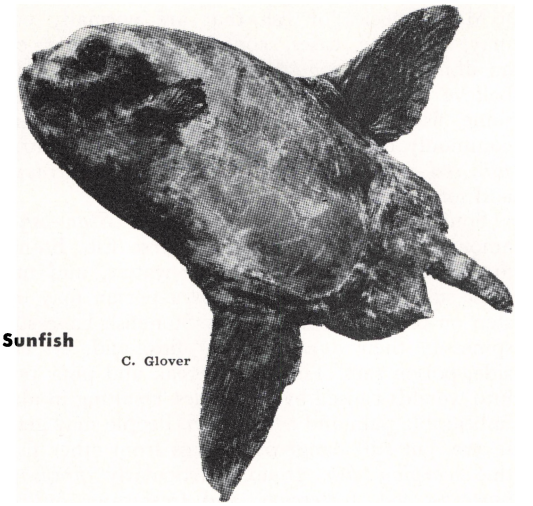


Seven-Bar Parrot Fish

Nannygai

Gert D. Wolff





Sunfish

C. Glover

they may catch *barracudas,* various *trevallies, ghostfish, hussars, sweetlips, groupers,* and *spinefoots.*

Open-Sea Fish. The wide surface waters between the continents are the haunts of the true oceanic wandering fish. Small *flying fish* are the favourite food of swift *dolphin fish,* which are quite different from the sea mammals called *dolphins.* They have beautiful shimmering green, blue, and gold scales. *Tuna* may make migrations of enormous distances. They range in size from small *albacores* to huge *bluefins,* which may weigh up to 680 kilograms. Like tuna, *marlins, sailfish,* and *broadbill swordfish* often feed in waters near the coast but also swim far out to sea.

Some of the most fascinating fish live in the open sea. Fishermen seldom catch them, but storms may wash them up on the shore. The huge, almost spherical *sunfish* are examples. A sunfish may weigh nearly a ton and be up to 3·4 metres long. Storms also sometimes wash up *oarfish.* An oarfish may be 4·3 metres long, and has a strange red crest and paddle-shaped lower fins and tail. The *Chimaera* family includes *elephant fish,* which have a grotesque appearance, with fleshy, twisted snouts.

Deep-Sea Fish, living in the dark regions far below the surface of the ocean, are generally quite small. They include strange *lantern fish,* which have patterns of small lights on their sides; *angler-fish,* with lights attached to "fishing-rods" at the tops of their heads; *viper fish,* with long jaws; *gulper eels,* which seem to consist of little more than mouths and tails; and many more. They probably include many species still undiscovered.

Freshwater Fish

Many species of fish that live in the sea near coasts enter the *brackish* (partly salty) water of estuaries, but few of them enter fresh water. Similarly, few freshwater fish can live in the sea. In most cases, the difference in salt content of the water would kill the fish. Many families of fish have both salt-water and freshwater members, but many others live solely in fresh water.

The *Queensland lungfish* are Australian members of a family that lives only in fresh water. In water that contains insufficient oxygen, a lungfish gulps air into its lung, using it as an additional breathing organ. But these lungfish also need their gills, and cannot live for long out of water. Like the related African and South American species, they closely resemble lungfish whose fossils have been found in rocks 200 million years old. Queensland lungfish grow up to 1·8 metres long and 45 kilograms in weight.

Other large freshwater fish of Australia include *Murray cod* and *Palmers,* or *giant perch.* The Murray cod of the Murray-Darling river system are favourites with anglers, and are good to eat. They may weigh more than 68 kilograms. Palmers are actually marine fish but they often enter fresh water. They live in all tropical parts of the Indian and Pacific oceans, and may weigh over 45 kilograms.

The *Galaxias* family consists of kinds of small fish found only in the Southern Hemisphere. It includes the tasty *whitebait* of New Zealand, which Australians call *jollytails;* the *eel gudgeons* of Tasmania; and many other species living in fresh or brackish water. Other members of the family live in Lord Howe Island, South America, the Falkland Islands, and South Africa.

The *lampreys* have no jaws, but have rasping, sucking mouths. They prey on other fish, rasping the

living flesh with the many horny teeth that surround their mouths. They breed in fresh water, but may enter the sea for part of their lives. In contrast, *freshwater eels* breed in the open sea. Their transparent, leaf-like larvae, called *leptocephali,* may drift for thousands of miles in the surface waters after hatching. They then *metamorphose* into *elvers* (small eels) and swim up rivers (see METAMORPHOSIS in the main volumes). The adults reach a length of 1·5 metres or more and weigh 14 kilograms. When they are ready to spawn, they leave the rivers and swim back to the spawning areas far out in the ocean. They die after spawning.

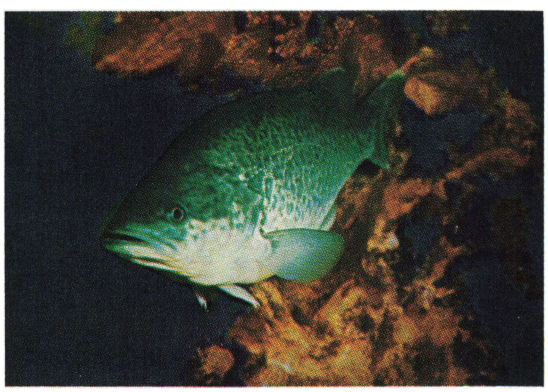
The *archerfish,* which live in tropical Australia and the Malay Archipelago, have the amazing ability to shoot down insects with hard jets of water from their mouths. Observers claim that these fish can shoot over a distance of 1·5 metres. When an archerfish closes its mouth, a small gap remains in the centre. The fish produces the jet by pumping water from its mouth cavity along a groove in its palate and through the gap. Archerfish range in size up to about 30 centimetres in length.

Many other fish have unusual habits. Male *nursery fish,* or *humpheads,* have bony hooks on their heads. When the females lay their eggs, they place them under the angles of the hooks. The males then carry them, safe from harm, until they hatch. Nursery fish live in tropical parts of Australia and New Guinea, and may be as long as 61 centimetres.

Various species of *catfish* are plentiful in tropical and subtropical rivers. They are easy to recognize by the long, whisker-like attachments called *barbels* surrounding their mouths. The first back fin and the side fins of catfish have strong, saw-like spines that can inject poisonous mucus. Wounds from them may be extremely painful, but are not fatal.

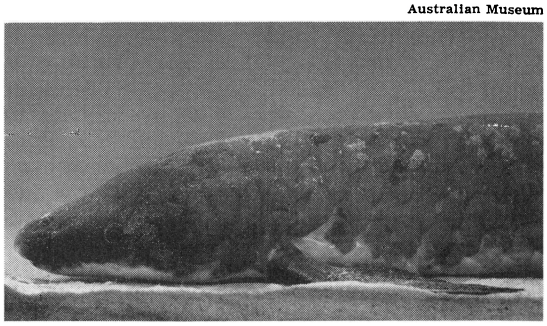
Murray Cod

Gert D. Wolff



Queensland Lungfish

Australian Museum



Increases in the human population of a region may have a great effect on its fish population. By fishing, men reduce the numbers of fish. But far more serious changes may result from other activities, such as building dams and introducing species from other regions. The silting up of rivers with earth from the land may also cause serious changes. Men have introduced both *rainbow trout* and *brown trout* into Australian and New Zealand rivers and lakes. The fish have flourished, and thousands of anglers fish for them. Partly as a result of their introduction, the native *grayling* have almost disappeared from the region. Grayling are delicious to eat, and reach about 0·5 kilogram in weight.

Another species of fish that has been introduced, the *English perch,* or *redfin,* has spread widely in Australian streams. Other fish introduced include *tench,* three species of *carp,* and, in tropical fish-farming areas, species of the *Tilapia* genus.

See also FISH in the main volumes and its related articles; FISHING and FISHING INDUSTRY in this volume; SHARKS and SPEAR-FISHING in the other Australasian volume.

FISHER, ANDREW (1862-1928), was prime minister of Australia three times in the years from 1908 to 1915—in 1908 and 1909, from 1910 to 1913, and in 1914 and 1915. Born at Crosshouse, in Scotland, he sailed to Australia in 1885. He was elected to the Queensland Legislative Assembly as member for Gympie in 1893. He represented Wide Bay, Queensland, in the federal parliament from 1901 until he retired. He was minister for trade and customs in the first federal Labor government in 1904. In 1907, he was elected leader of the federal parliamentary Labor party.

FISHER, SYLVIA (1910-), an Australian soprano, became a principal singer at the Royal Opera House, Covent Garden, in London. She was born in Melbourne and named SYLVIA GWENDOLINE VICTORIA FISHER. She first gained acclaim for her singing when she won the *Sun* aria contest in Melbourne in 1936. She first sang at Covent Garden in 1948. In 1955 and 1961, she made concert tours of Australia for the Australian Broadcasting Commission. See also MUSIC IN AUSTRALIA in the other Australasian volume.

FISHER'S GHOST is the subject of an Australian legend dating from the 1820s. On the night of June 17, 1826, Frederick Fisher disappeared from his farm at Campbelltown, in New South Wales. His employee, George Worrall, told friends that Fisher had fled to Britain to escape a charge of forgery. But, a few months later, another farmer, John Farley, claimed that he had seen Fisher's ghost sitting on a fence and pointing to a field nearby. Policemen later found Fisher's body in a shallow grave at the spot Farley said the ghost had indicated. George Worrall confessed to the murder of Fisher and was eventually hanged for his crime.

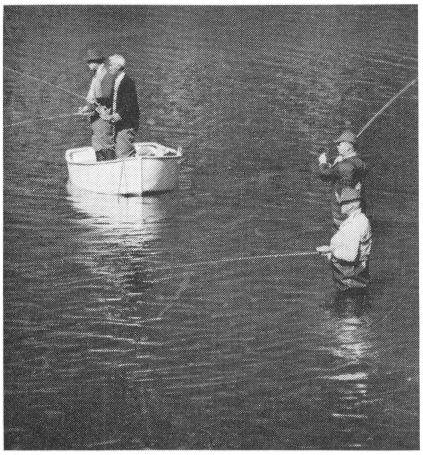
Beverley Clifford

Bob Dyer

Spear-Fishing, *above,* is a new and exciting sport. Spear-fishermen have to be fit and active, and expert in handling their equipment.

Freshwater Fishing, *right,* is a traditional and quiet sport. Many anglers fish from boats. Others wade into the water in rubber boots.

A White Death Shark weighing 1,056 kilograms (2,328 pounds), *left,* was caught by Bob Dyer in 1955. It was one of the biggest fish ever caught by a fisherman using rod and line.



New Zealand Herald

FISHING is a popular sport with people of all ages in Australia and New Zealand. More people go fishing at some time each year than follow any other sport. They can fish in deep-sea waters, from beaches and coastal rocks, in estuaries, in lakes, or in rivers and streams. A wide variety of fish live in the waters of Australia and New Zealand.

The New Zealand government attracts anglers to the country, as tourists, by publicizing the abundant fish in its waters. Many fishermen consider that New Zealand's leaping marlin, mako sharks, tuna, and swordfish offer anglers some of the most thrilling deep-sea fishing in the world. Other anglers go to New Zealand to fish for the exceptionally large trout that live in the thermal waters of Lake Taupo, Tongariro River, and Lake Rotorua.

In Australia, deep-sea fishermen from all parts of the world fish on the Great Australian Bight for the world's largest game fish, the white death shark.

Salt-Water Fishing

The Great Barrier Reef is probably the finest salt-water fishing area in the world. Fish grow to enormous sizes in this area because of the abundant food among the coral reefs. The major sporting fish are black kingfish, Cooktown salmon, coral cod, Maori wrasse, red emperor, Spanish mackerel, spotted cod, and venus tusk. But hundreds of other smaller fish provide sport for anglers. Game fishermen can struggle against the big fish that abound near the reefs. The main game fish include barracouta, sawfish, tunas, and sharks.

On all the Australian coasts, anglers fish from

jetties, wharves, and rocks for Australian salmon, bream, flathead, and whiting. Many others go out in boats for luderick, or drift over sand flats for salmon. Some use boats to fish for blue swimmer crab or seasonal fish such as tailor, flounder, garfish, and John Dory. Traditional rods and reels with casting floats are popular with fishermen seeking drummer, red morwong, leatherjackets, tarwhine, jewfish, and luderick. But anglers seeking tailor or salmon often spin with heavy metal lures. Anglers troll for smaller game fish, such as snook, snapper, bonito, mackerel, turrum, and trevally. Around Rosemary Island, in the Dampier Archipelago, off Western Australia, huge sail-fish hurl themselves into the air when anglers hook them. Some of these sail-fish are of near world-record sizes.

The waters around New Zealand are rich in the plankton on which fish feed, and some deep-sea game fish grow to great sizes. Some of them have been known to fight for up to 16 hours before being "landed". The sea also abounds with smaller game fish such as banded parrot fish, blue maomao, butterfish, drummer, kahawai, mado, porae, red moki, sea bass, smelt, snapper, tarakihi, trevally, and warehou. The kahawai is the easiest fish to catch. It will take bait on the bottom, will strike eagerly at spinners cast in a river-mouth, off a beach, or from a boat, and will snatch at almost anything trolled behind a boat. Fishermen also know the kahawai for its fighting qualities when hooked.

Freshwater Fishing

The building of many irrigation systems, artificial lakes, dams, and weirs has changed freshwater fishing in Australia. Warm-water species, such as Murray cod, yellowbelly, and perch, can no longer flourish in the colder, faster-flowing waters. Government researchers are trying to introduce new sporting fish into these waters, and to increase the food supply of trout and bass. In lakes and rivers of New South Wales, researchers have successfully introduced Atlantic salmon, a high-leaping fighting fish. The Atlantic salmon comes from Nova Scotia. Anglers have already caught them in the Murrumbidgee River, around Micalong Creek.

Trout are regarded as the "thoroughbreds" of freshwater angling, especially in Tasmania and New Zealand. Many fly-fishermen consider fishing for trout with a wobbler unsporting. A *wobbler* is a metal lure that acts in the water like a small fish. At places such as Lake Eucumbene, in the Snowy Mountains, where new dams have flooded large areas of pasture-land, anglers have caught enormous trout.

In the tropical regions of Australia, freshwater anglers fish in lagoons and creeks for barramundi. Anglers know barramundi for their fighting qualities. Sportsmen also fish for catfish, grunter, jungle perch, mangrove jack, ox-eye herring, and saratoga.

Spear-Fishing

Spear-fishermen in Australia and New Zealand have to be careful and physically powerful, because of the big man-eating sharks found off both countries. Spear-fishermen must be strong swimmers. They also have to master the use of their equipment, and accustom themselves to the effects of water pressure. For many people, spear-fishing has opened a new world of beauty and fascination beneath the sea. It presents swimmers with the challenge of the unknown. All Australian and New Zealand coasts offer good opportunities for spear-fishing. But the sport can be practised throughout the year only in the warm waters to the north.

The Angler and the Law

In most of New Zealand and Australia, anglers must pay a licence fee for freshwater fishing. For example, fishing authorities in New South Wales collect about $A 180,000 in fees each year. Fishing authorities use the licence fees mainly to pay salaries and transport costs for fishing inspectors, and to pay for research.

In all areas of both New Zealand and Australia, authorities prohibit anglers from catching fish below certain sizes. They determine these sizes on the basis that fish will spawn at least twice before reaching the approved length, and restock the waters in which they live. Fishermen must throw back small fish or risk being fined. Most districts have *closed seasons* for trout—that is, seasons during which anglers may not catch them—to allow the trout to spawn.

Clubs and Competitions

The Australian Anglers' Association, the largest beach fishing body, conducts state and national championships. The Australian Anglers' Casting Association conducts dry-land distance and accuracy events in casting. The Australian Game Fishing Association has local state associations throughout Australia, and is affiliated to the International Game Fishing Institute at Miami, Florida, in the United States. Most returned servicemen's clubs have angling clubs. In New South Wales, leagues clubs also conduct fishing contests for members.

Membership of many trout fishing clubs, such as the Rod Fishers' Society of Australia, is restricted, and considered an honour. A few clubs, such as the South Australian Rod Fishers' Association, have the sole right to fish certain stretches of trout water.

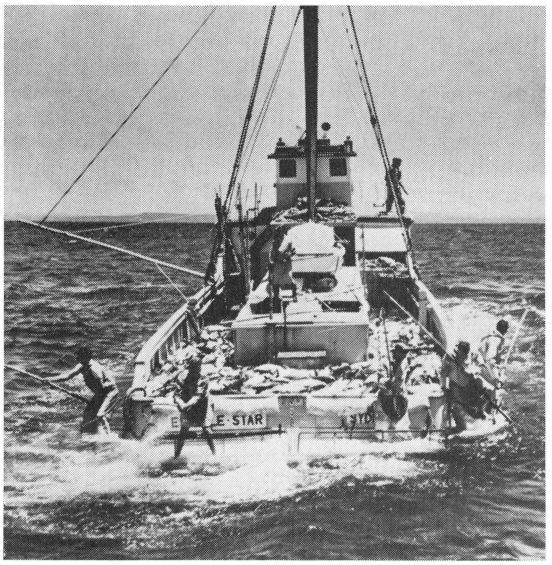
Notable Records

Anglers have caught Murray cod weighing up to 68 kilograms in Australian inland waters, black marlin up to 443 kilograms in New Zealand's Bay of Islands, snapper up to 23 kilograms and Spanish mackerel up to 73 kilograms off Queensland, and sail-fish up to 68 kilograms off Western Australia. The biggest catches are white death sharks, which live off South Australia. Seven of these fish weighing more than a ton each have been caught with rod and line. A Victorian farmer, Alf Dean, caught six of them. Bob Dyer, the Sydney television entertainer, caught the other. In 1959 Dean caught a white shark weighing 1,208 kilograms. It is the biggest fish ever caught with a rod and line in the world.

See also FISH; FISHING; and FISHING INDUSTRY, and their lists of related articles, in the main volumes; FISH and FISHING INDUSTRY in this volume.

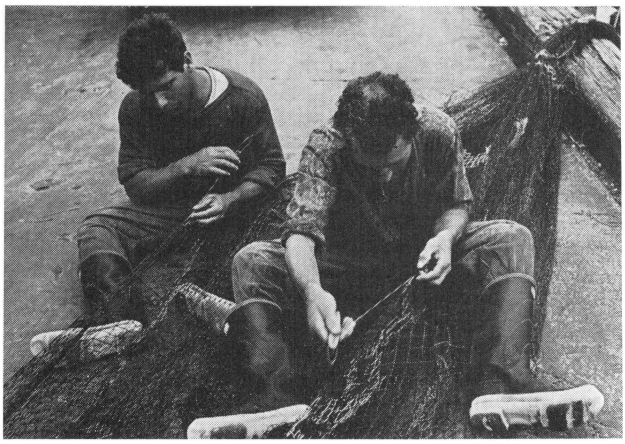
Trawling off the coast of New South Wales, crews haul in their nets, release the catch into boxes, and take it to port for processing and marketing.

Fishing with Poles and Bait for tuna off the coast of South Australia, crews heave the fish onto the deck of the boat. They use barbless hooks, and the fish simply fall off the hooks onto the deck.
Australian News and Information Bureau



FISHING INDUSTRY. Fishing is an important industry in Indonesia, Malaysia, and Singapore. It is also important in Australia and New Zealand, but less so than in the other three countries. In Indonesia, Malaysia, and Singapore, thousands of people work at the fishing industry, and fish forms a major part of the food that people eat. One out of every 24 people in Indonesia and 1 out of every 14 people in Malaysia are fishermen. Most Indonesians use simple equipment and small boats without engines. Most Malaysian and Singapore fishermen have motorized boats.

In Australia and New Zealand, fish is not an important item of diet. Fishermen in these countries operate with modern equipment and motorized boats. As a result, the average catch for each fisherman is far higher in both Australia and New Zealand than in Indonesia, Malaysia, or Singapore.



Beverley Clifford

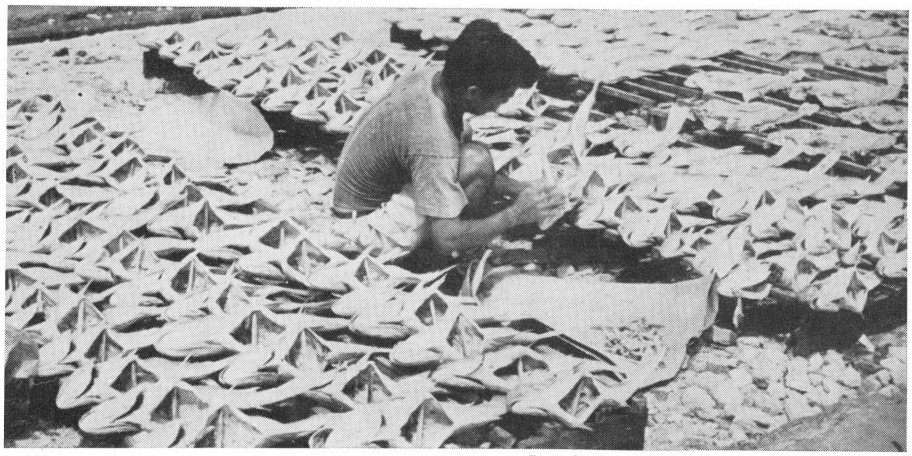
Mending Nets requires skill and patience. Fishermen make sure that their nets are in order before putting to sea.

Kinds of Fishing

Indonesia has examples of most kinds of fishing and many specialized types of fishing gear. Indonesian fishermen make their gear in traditionally formalized designs from bamboo and other local materials. One or two people can operate most types of gear. In 1960, Indonesia had about 120,000 fishing craft, but only 1,000 of these were motor-boats.

The most important sections of the fishing industry include cultivating milkfish and prawns in brackish-water ponds, fishing with traps and set-nets in estuaries and along the coast, and fishing from *mayangs* (small boats) for a wide range of species at sea. These are old-established fisheries. More recent fisheries include cultivating carp in fresh water and fishing for tuna with modern, motorized vessels.

Cultivating milkfish, prawns, and other organisms is a distinctive feature of Indonesian fisheries. Visitors to Indonesia arriving at Jakarta by air can get a view of a patchwork of ponds, chiefly rectangular, spread over the coastal plains. Fishermen stock the



B. D. Wallis

Fish Are Cured to preserve them until they can be sold. Malaysian fishermen gut fish, place pegs in them to keep them open, and spread them in the sun to dry.

ponds with young milkfish collected on ocean beaches, sometimes at great distances from the ponds. They carry the fish from the beaches in shallow watertight baskets full of water. From time to time, they let fresh sea water into the ponds by means of sluice-gates. The tide carries young prawns and other organisms into the ponds. The milkfish are kept in the ponds for two years, until they are big enough to be sold.

Indonesian fishermen use traps to catch most species of fish that live in coastal waters. Traps range from small hand-baskets, used to catch fish in shallow water, to large semi-permanent structures set up along the coasts. Many of these traps roughly resemble an arrow in shape, with one part representing the shaft and the other part representing the arrowhead. The "shaft", which is a kind of lattice fence, projects at right-angles to the shore, across the path of migrating fish. It leads into the "arrowhead", which stands out in the sea. The fish swim along the "shaft" into the capture chamber in the "arrowhead". The capture chamber may be rectangular or heart-shaped, and may have one or more wings. In some traps, the wings re-curve towards the shaft, forming a series of subsidiary chambers that confine the fish. The fishermen use lift nets to take the fish from the chambers.

Fishermen use set-nets in tidal streams, chiefly in estuaries. Some set-nets consist merely of sheets of netting strung on poles stuck in the river-bed. The fish swim or are carried by the tide into the net and the fishermen scoop them up. Other set-nets are little more than netting bags, set between poles.

The Indonesian mayang fleet consists of tens of thousands of boats, most of which work under sail. Fishermen use lines, nets, and lures to take a wide variety of fish, such as trevally, scad, Spanish mackerel, and tuna, that live near the surface or in middle depths of the sea.

Malaysia. Malaysian fishermen use many of the techniques used in Indonesia. They fish from small boats and use traps in coastal waters. About a quarter of the Malaysian fishing fleet is without engines. But new techniques are being introduced.

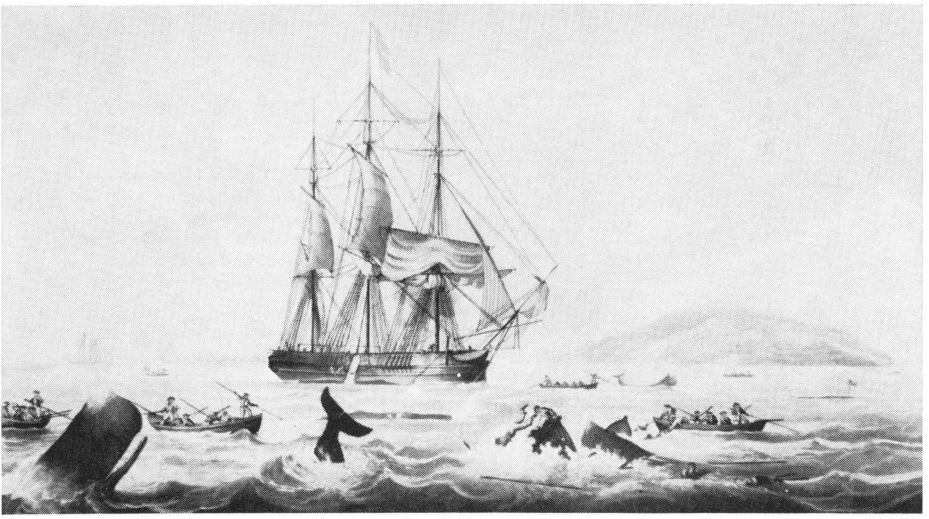
One of the distinctive features of Malaysian fisher-

Australian News and Information Bureau

Fish Are Canned for home and export markets. Preparing salmon for canning, workers open the fish and remove the guts.

Fish Are Sold on wholesale markets and to local dealers. Australian fishermen place fresh prawns in baskets for marketing.

Beverley Clifford



Mitchell Library

Whaling was important in Australia and New Zealand in the early 1800s. Whalers operated from sailing-vessels and, in inshore waters, from small boats. In the early 1830s, half of Australia's exports came from whaling.

ies is the use of purse-seines to catch kembong, a mackerel that lives in surface waters. A *purse-seine* has a row of corks along one of its long sides and leads and rings along the other. Fishermen shoot the net from two small boats so that it forms a circle in the water, enclosing a shoal of fish. The net hangs in the water, supported by the corks that float on the surface. The fishermen join both ends of the net to form a circle. They close the bottom of the net by pulling on a rope that runs through the rings. The net gets its name from this closing, or "pursing".

Singapore. Among the distinctive features of fisheries in Singapore are carp ponds and prawn ponds. Singapore fishermen rear Chinese carp in freshwater ponds. The young carp are brought from China, chiefly from the Pearl River. Carp ponds yield about 1½ tons per acre (3.8 tonnes per hectare) every year. Malaysian fishermen also cultivate other freshwater fish, including gourami and sepat Siam.

Prawns are reared in ponds of brackish water. The flowing tide carries the young prawns into the ponds. Fishermen trap them by closing the pond sluice-gates. When the prawns have grown to marketable size, fishermen catch them at low tide by placing a bag-net at the seaward side of the sluice opening and letting the pond water pour out through it.

Australia. The crayfish industry is Australia's most valuable fishery. Crayfish tails are important export items. Fishermen catch crayfish in cone-shaped pots. Working from boats, they set the pots on the sea-bed. Each pot has an opening in its crown and a piece of bait fastened inside. Commonly used baits include fish heads and cattle hocks. The crayfish, attracted by the bait, climb through the opening and are trapped in the pot.

Tuna fishermen operate off the south coast of New South Wales and the west coast of South Australia. The fishing technique they use is called *pole and bait.* They locate a school of tuna at the surface and attract and excite them by throwing small fish as live bait among them. They use long poles, relatively short lines, and barbless hooks, called *jigs,* to catch the fish. The excited tuna bite at the jigs and, when they are hooked, the fishermen heave them onto the deck of the boat.

Trawl fishing is common on the east coast (see TRAWLING in the main volumes). Fishermen once operated with otter-trawls from steam trawlers. But, today, they generally use Danish seiners. An *otter-trawl* is a conical bag of net with wings and boards. The boards keep the wings spread and the net open. A moving trawler drags the net along the sea-floor. Prawn fishermen use a special type of otter-trawl. A *Danish seine* is a rectangular sheet of netting with a bag at its centre. Fishermen drag it across the sea-floor to a stationary boat.

Australia's edible molluscs include oysters, scallops, and mussels. All states, except South Australia, produce naturally grown oysters. New South Wales and Queensland produce cultured oysters for food. Tasmania and Victoria have thriving scallop industries. Victoria is the chief centre for mussels.

Whaling is done on a small scale, mainly from a single station in Western Australia. Whalers use aircraft to locate sperm whales and diesel-powered craft and tow-boats to hunt them.

New Zealand. The New Zealand fishing industry, like that of Australia, centres on a few highly prized species. These fish include snapper, blue cod, and crayfish. Fishermen use *hand-lines* (fishing lines without rods) to catch blue cod and, in some areas, snapper. They also use *long lines* with about 1,000 hooks set along their lengths. They anchor a long line so that it remains in one position and place a buoy as a marker at each end. They travel along the line in a boat, unhooking the caught fish and re-baiting hooks wherever necessary.

Set-nets and drag-nets are the most widely used nets. Fishermen use set-nets to catch butterfish and moki, drag-nets to catch flounder and snapper, and trawls to catch snapper, sole, and gurnard. In the Auckland and Bay of Plenty areas, fishermen also use Danish seines. In the 1960s, New Zealand fishermen developed their fisheries chiefly by the introduction of stern trawling.

Fishermen use baited pots and baskets to catch

crayfish off the south-west coast of the South Island. They work mainly from rowing-boats and small launches. The oyster-fishing industry is centred on the north coasts of the North Island and on Foveaux Strait between the South Island and Stewart Island.

How Fish Are Sold

Fish is a highly perishable food. As a result, it must be eaten soon after it is caught, carefully stored, or processed to make a new, less perishable, product. Fish is sold fresh wherever possible, because the cost of storage and processing increases its price. Fish is processed not only as a means of preservation but also as a means of adding flavours. Processing is necessary in tropical countries, where fish spoils easily because of the heat. Inexpensive methods of processing are used in order to keep down costs. Widespread use of such methods distinguishes the fisheries of Indonesia, Malaysia, and Singapore from those of Australia and New Zealand.

Processing. Malaysian fishermen process their catches of kembong by a mild form of salt-curing. They boil the fish in salt water and drain the water away. Fish treated in this way keeps for a few weeks. Fishermen in Indonesia and Malaysia also use other salt-curing methods. They convert shrimp into a paste called *trassie* by grinding and mixing it with salt. They make some shrimp into *krupok* (prawn flakes) by grinding it, mixing it with rice flour, and drying it in the sun. The mixture forms flakes that expand greatly when placed in hot oil. In Indonesia and Malaysia, fish are sometimes packed in ice for preservation. They are seldom put in refrigerators because consumers do not like frozen fish.

Between 80 and 90 per cent. of the Australian fish catch is consumed in Australia. Most of it is sold fresh, as whole fish or as fillets. But tuna is canned before it is sold. Australia exports crayfish, prawns, scallops, and frozen tuna.

New Zealand exports a larger proportion of its catch than Australia. It exports much of its scale fish to Australia and its crayfish to the United States.

Marketing. Indonesia, Malaysia, and Singapore have large numbers of small fishing fleets, scattered over a wide area. In many parts, inadequate transport makes marketing difficult. As a result, fish markets are widely spread, with little central organization or government control. The fishermen and their families eat a large part of their catch. They sell the remainder to local dealers and retailers. But large cities, such as Jakarta and Singapore, have well-organized wholesale fish markets.

In Australia, fish-marketing arrangements vary from state to state. In Queensland, the Fish Board has exclusive control over markets. In New South Wales, the Fish Marketing Authority controls the market in conjunction with fishermen's co-operatives. In South Australia, SAFCOL, a fishermen's co-operative society, sells a large part of the catch, particularly tuna and crayfish, on behalf of the fishermen. SAFCOL operates a cannery at Port Lincoln and owns fishing enterprises in New South Wales, Victoria, and Tasmania. In Victoria, co-operative societies together with a group of agents from the Melbourne fish market control the market. In Western Australia and Tasmania, marketing is done through co-operative societies and agents.

Organization and Control

The organization of the fishing industry in all these countries ranges from small enterprises of one or two men to large corporations. But the number of such corporations is relatively small. The Penang tuna fishery is a joint Malaysian-Japanese corporation. Companies operate some of the Western Australian crayfish industry and some of the prawn fishing on the west and east coasts. New Zealand also has some corporations. But small and medium-sized private operators do most of the fishing in these countries.

The work of the co-operatives varies from one country to another. In Indonesia, Malaysia, and Singapore they provide credit and gear for fishermen at reduced rates. Some Australian co-operatives also provide similar services. Others, such as SAFCOL, are active in fish marketing.

The governments of all these countries have fishery programmes. They sponsor research in fresh-water, brackish-water, and marine fisheries. They regulate fishing operations in varying degrees. The Australian states have strict regulations controlling fishing in coastal waters and particularly in estuaries. New Zealand's system of regulation is less strict. In Indonesia and Malaysia, the government exercises general controls such as prohibiting certain kinds of fishing. Closer supervision is difficult in these countries because of the large number of small, widely spread fishing units. The Indonesian and Malaysian governments organize financial grants of various kinds to develop the fishing industry.

History

Fishing is an old industry in Indonesia, Malaysia, and Singapore. For hundreds of years, fishermen in these countries used traditional fishing methods. But, since World War II, the fishing industry has been gradually modernized. A large proportion of the fishing boats of the Malay Peninsula and Singapore have been mechanized. During this period, Indonesia received financial and technical help from the United States and the United Nations to enable it to develop its fisheries. The governments of Indonesia and Japan formed plans to co-operate in developing sea fisheries, particularly the tuna industry.

Australia's fisheries were mainly coastal until World War I. From 1909 to 1913, a government trawler explored the Great Australian Bight and the continental shelf off the east coast. The success of this project led to the development of the east coast trawl fisheries. After World War II, bluefin tuna and prawn fisheries developed and the crayfish industry of Western Australia and south-eastern Australia expanded. In 1950, the federal government sponsored a visit by fishermen from Fiji to instruct Australian crews in tuna fishing with poles and live bait. Later developments include the use of gill-netting and long lines for tuna fishing.

See also FISHING INDUSTRY in the main volumes; FISH in this volume.

FITZGERALD, R. D. (1902-), a leading Australian poet, wrote poetry concerned mainly with the nature of man's existence. His prize-winning poem *Essay on Memory* deals with the influence of past experience on the present. His books of poetry include *Between Two Tides, Moonlight Acre, This Night's Orbit, Southmost Twelve,* and *Forty Years Poems.* He was born in Sydney, and named ROBERT DAVID FITZGERALD.

FITZROY is the name of three Australian rivers. The Fitzroy River in Queensland flows 485 kilometres (300 miles) from the Dawson and MacKenzie rivers to Keppel Bay near Rockhampton. The Fitzroy in Victoria flows 48 kilometres (30 miles) from near Mount Deception to Portland Bay. The Fitzroy in north-western Australia is 560 kilometres (350 miles) long. After summer monsoon rains, it carries enormous volumes of water to the sea.

FLAG. The Australian flag has the British union flag at the upper left on a blue field. Four seven-pointed stars and one with five points represent the constellation of the Southern Cross, and a large seven-pointed star represents the Commonwealth of Australia. The flag is almost identical to a flag flown in Melbourne in 1901, the year Australia became a federation. This flag was based on five winning entries in a competition held by several private firms with the support of the federal government. A bill drafted in 1903 sought to make it the national flag. King Edward VII agreed, but the bill was not officially adopted. Yet the design became accepted and used as Australia's flag. The Commonwealth star was changed in 1909 from five to seven points to represent the states and territories of Australia. Parliament officially adopted the flag in 1953.

Indonesia adopted the nationalist movement's colours for its flag when it became independent in 1945. The top half is red (for courage), the bottom half white (for purity). The Malaysian flag, adopted in 1963, has a yellow crescent and star on a blue canton. Fourteen points on the star and the 14 horizontal red and white stripes represent the 14 original states in Malaysia. The crescent symbolizes the Islamic faith.

New Zealand's flag, adopted in 1902, has the British union flag at the upper left on a blue field. The Southern Cross is at the right.

See FLAG (colour pictures) in the main volumes.

FLANNEL FLOWERS grow in many parts of Australia and New Zealand. The two largest and most attractive kinds grow on the exposed sandy plateaux of eastern Australia and the sand heath of western Australia. The east coast one is a shrub about one metre (3 feet) high, with woolly, grey, divided leaves and flowerheads like flannel daisies. Each flowerhead is about 76 millimetres (3 inches) in diameter, with a central disc of small woolly flowers surrounded by a ring of woolly *bracts* (leaves) that are white with delicate green tips.

Scientific Classification: Flannel flowers belong to the parsley family, *Umbelliferae,* and the genus *Actinotus.* There are about 16 species in Australia and one in New Zealand.

Australian News and Information Bureau

Matthew Flinders proved that Van Diemen's Land (now Tasmania) is an island. He also sailed right round Australia.

FLEAY, DAVID (1907-), an Australian zoologist, was the first person to breed a platypus in captivity, in 1943, and the first person to milk a taipan for antivenene purposes, in 1950. DAVID HOWELLS FLEAY was born at Ballarat, in Victoria. He was director of the Sir Colin Mackenzie Sanctuary at Healesville, in Victoria, from 1937 to 1947. He became director of a research reserve at West Burleigh, in Queensland, in 1952.

FLINDERS is the longest river in Queensland, about 840 kilometres (520 miles) long. It rises in the Great Dividing Range and flows westwards and then northwards into the Gulf of Carpentaria. The Cloncurry and Saxby are among its tributaries.

FLINDERS, MATTHEW (1774-1814), was a British navigator who charted and explored large areas of the Australian coastline. With the British explorer George Bass, Flinders sailed round Van Diemen's Land (now Tasmania) and proved that it was an island. Flinders also showed that there was no strait through the centre of Australia, as some people believed. He was also one of the first men to sail right round Australia.

Early Life. Flinders was born at Donington, in Lincolnshire. His father, a surgeon, wanted him to study medicine. But Daniel Defoe's book *Robinson Crusoe* fired Flinders with the desire to go to sea and become an explorer. He worked as an officer's servant on board the warship *Alert* in 1789. In 1791, he sailed through the Pacific Ocean to the West Indies with Captain Bligh. He took part in the British victory over the French off Brest on June 1, 1794, on board the *Bellerophon.* Flinders met Bass on board the *Reliance* on its voyage to Australia.

Voyages of the *Tom Thumb*. After Bass and Flinders reached Sydney, in 1795, they set out to explore in the *Tom Thumb,* a small sailing-boat 8

feet long and 5 feet wide. They sailed down the coast and explored Botany Bay and the George's River, which flows into it. In 1796, they set out in a larger boat, also called the *Tom Thumb*. They entered Port Hacking and sailed past the present site of Wollongong until they reached Lake Illawarra.

On this journey, Bass and Flinders met some Aborigines on the shore. They were afraid that the Aborigines would attack them. Flinders amused the Aborigines by cutting their hair. This device worked so well that afterwards Flinders tried to treat the Aborigines with kindness and good humour.

Voyage Around Van Diemen's Land. Later in 1796, while Flinders was away in Cape Town, Bass made a voyage in a whale-boat into what is now called Bass Strait. He suspected that a strait existed there. But he could not be sure, because he did not sail right through it. Flinders, who made a voyage to the Furneaux Islands in 1797, also suspected that Van Diemen's Land was an island.

In 1798, Flinders and Bass set out to test their theories in the *Norfolk,* a small sloop of 28 tons. They passed through the strait between Van Diemen's Land and the mainland. This strait was later named after Bass. They sailed right round Van Diemen's Land and proved that it was an island.

Voyage Around Australia. Flinders returned to Britain in 1800. The naturalist Sir Joseph Banks introduced him to Lord Spencer, the First Lord of the Admiralty. Lord Spencer agreed to give Flinders command of the 334-ton brig *Investigator* to find out whether or not the eastern part of Australia was separated from the western part by a large strait. Flinders married in Britain. But he had to leave his wife, Anne, behind when he left in July, 1801.

Flinders had the *Investigator* repaired at the Cape of Good Hope. Then he sailed to Cape Leeuwin. He began his voyage along the southern coast of Australia. He explored Spencer Gulf, Gulf St. Vincent, and Kangaroo Island. Later, he met the French explorer Nicolas Baudin. Flinders called the place of their meeting Encounter Bay. He sailed on to Bass Strait and entered Port Phillip Bay. He landed in Sydney on May 8, 1802.

After taking on fresh stores and refitting his ship, Flinders sailed north to Cape York and through the dangerous Torres Strait. He then began to survey the coast of the Gulf of Carpentaria. Flinders found that his ship was in a dangerously rotten condition. He decided to complete the journey round the coast of Australia as quickly as possible. He reached Sydney again on July 9, 1803. The *Investigator* was declared unfit to sail any farther.

Voyage Back to Britain. Flinders set out for Britain as a passenger on the ship *Porpoise*. This ship attempted to sail to India through Torres Strait and was wrecked on a coral reef. Flinders returned to Sydney in an open boat.

Flinders set out again on Sept. 21, 1803, in command of the small 29-ton schooner *Cumberland*. He called at Mauritius. Britain and France were still at war. The French Governor, General Decaen, imprisoned Flinders as a spy. The years of imprisonment from 1803 to 1810 broke Flinders's spirit. When he was finally released, he was in poor health. He spent the last years of his life writing his book *A Voyage to Terra Australis*. He died the day his book was published.

See also BASS, GEORGE; BAUDIN, NICOLAS; HISTORY OF AUSTRALIA; and INVESTIGATOR in this volume.

FLINDERS ISLAND is the largest of the Furneaux group in Bass Strait off the north-eastern coast of Tasmania. For location, see AUSTRALIA (colour maps) in this volume. The island is about 80 kilometres long and is from 13 to 24 kilometres wide. It has a population of about 1,250. The island's industries include farming and exporting *mutton birds* (young shearwaters). Whitemark is the largest town.

FLINDERS RANGE, in South Australia, stretches northwards from Port Augusta beyond Leigh Creek. The whole region lies more than 150 metres above sea level. St. Mary's Peak, on the northern edge of the Wilpena Pound, rises in height to nearly 1,200 metres above sea level. Wind and water have eroded the reddish rocks of the ranges, giving them sharp outlines. For location, see SOUTH AUSTRALIA (map) in the other Australasian volume.

FLOODS mainly occur in flat, low-lying plains along the gentler reaches of rivers, especially near coasts. Nearby mountain slopes, the shortness of rivers, and abundant rainfall account for many of the floods that occur in Australia, Indonesia, Malaysia, New Zealand, and Singapore. Floods may also occur in regions where river systems only flow after seasonal or occasional rain. These kinds of floods occur seasonally in tropical areas and occasionally in central Australia.

In eastern and south-eastern Australia, including Tasmania, floods may occur in any season. In New Zealand, no part of the country is free from flooding. In Malaysia, the Malay Peninsula and north-western Borneo may experience floods at any time of the year. Many of the short, swift-flowing rivers flood during the north-east monsoon period from November to January. In Singapore, the many small streams flood frequently during storms.

In Australia, 89 people were drowned when the Murrumbidgee River flooded in 1852. In 1952, the Lachlan, Macquarie, and Murrumbidgee rivers flooded, causing vast damage to farms and towns. In 1954, 26 people were drowned when the rivers of northern New South Wales flooded. In 1967, major floods occurred in Queensland and northern New South Wales. Even worse floods struck in 1974, causing extensive damage in the same area, especially in Brisbane. In New Zealand, 151 people died during a flood in 1953, when the crater lake of Mt. Ruapehu burst its banks and swept away a railway bridge minutes before the arrival of the train in which they were travelling. Another 21 people were drowned during a flood at Poverty Bay in 1938. Major floods occurred in Malaysia in 1926, 1947, 1954, 1957, and 1967. In 1966, the Solo River Dam in Central Java broke after heavy rains. Nearly 200 people were killed.

FLOREY, HOWARD WALTER. See FLOREY, HOWARD WALTER, in the main volumes.

Pohutukawa Tree

Waratah

FLOWERS of Australia, Indonesia, Malaysia, New Zealand, and Singapore have certain similar features. To botanists, these similarities suggest that the plants have a common origin. The land masses of the five countries were probably connected millions of years ago. The climates of Australia and New Zealand were warmer and moister then than they are today. Dense jungles probably grew there as they do in Indonesia, Malaysia, and the island of New Guinea today.

After the land masses separated, large areas of Australia and New Zealand became much drier. Plants had to adapt to these new conditions. As a result, different kinds of plants began to appear. But the climate did not alter substantially in Indonesia, Malaysia, and New Guinea, and in isolated parts of New Zealand and eastern Australia. Plants in these areas did not alter so much. All these changes took millions of years.

In Australia, great seas flooded the continent and separated the plants of one side from those of the other. As a result, the two groups of plants evolved independently to a certain extent. Open forests, scrublands that are nearly deserts, and grasslands now occupy the larger part of Australia.

Indonesia, Malaysia, and New Guinea still have similar climates. As a result, their tropical rain forests have many plants in common. Alpine flowers grow on their high mountains. In New Guinea, earth movements did not bring about changes in most of the original plants. But in the western part of New Guinea, changes in climate resulted in the formation of open plains and in the development of plants suited to dry, barren areas.

A long time after the climate of New Zealand became dry, some parts of the country became more tropical again. Tree ferns and club mosses developed in these areas. Beautiful alpine flowers grow now on the high mountains of New Zealand.

Rain Forests

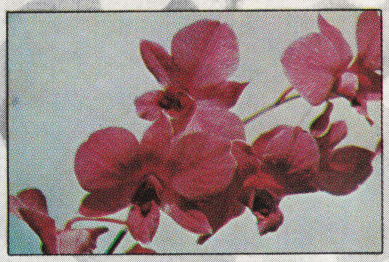
The rain forests of Australia are similar to the tropical jungles of Indonesia, Malaysia, and New Guinea. But they are not so dense and they contain fewer kinds of plants. New Zealand, Tasmania, and parts of the mainland of Australia have beech forests. New Zealand also has areas of semi-jungle.

Plants called *epiphytes* grow in the rain forests of all five countries. These plants include certain ferns and orchids. They do not have to penetrate the soil because they have roots that can absorb water from the air.

Epiphytic orchids grow in the rain forests of all five countries. But the orchids of Indonesia, Malaysia, and New Guinea are outstanding in variety, in beauty of form and colour, and in the size of their flowers. Epiphytic orchids include those of the *Dendrobium* group and those of the *Bulbophylum* group.

Dendrobiums are among the largest and most spectacular orchids. These flowers grow in all five countries. Many dendrobiums, including Cooktown orchids, beech orchids, and rock lilies, grow in Australia. Large numbers of these orchids, including pigeon orchids, grow in Indonesia and Malaysia. Only one species, Cunningham's orchid, grows in New Zealand.

Bulbophylums grow in all five countries. Pygmy bulbophylums of New Zealand have bulbs no larger



Cooktown Orchid

Yellow-Flowered Gum

Wattle Tree

Malaysian Orchid— *M. scortachiniae*

Spiny Banksia

Scarlet Banksia

Stirling Macoboy; N. Z. National Publicity; Harold Pollock: Blosanlu Productions; Thistle Y. Harris

than peas. Orchids of the *Sarcochilus* group also grow in all five countries. One type of this group, the orange blossom orchid, grows in all these countries except New Zealand.

In Australia, the rain forest extends in a narrow strip along the eastern coast. It is more than 160 kilometres wide in only a few places, and is broken in some places by other types of forest. Many ferns and mosses grow on the moist ground. Some climbing ferns also grow in the rain forest. Epiphytic ferns, including bird's-nest ferns, staghorns, and elkhorns, grow in the true tropical jungles of Australia.

Trees with brilliantly coloured flowers grow in various parts of these forests. Silky oaks have golden flowers. Illawarra flame trees and firewheel trees have bright red flowers.

In Indonesia, Malaysia, and New Guinea, the tropical jungles have a continuously warm and wet climate. Plants grow rapidly and compete with each other for food, water, light, and room to grow. Tall straight trees form a barrier high above the ground that is too dense for light to shine through. As a result, hardly any shrubs grow under these trees. Instead, massive climbing plants called *lianas* twist around the stems of tall trees and grow rapidly towards the light. Among the climbers of these tropical jungles are arums, bamboos, butterfly climbers, figs, gourds, and palms.

Arums have a *spathe* (sheath) round a long central spike of flowers. Many emit a strong perfume. Gourds are members of the squash family. They have large, fleshy, strangely shaped fruits.

Climbing plants also include pitcher plants. Some of the leaves of a pitcher plant grow into the form of *pitchers* (vessels for holding liquids). These slippery, lined pitchers contain a sticky digestive liquid. The colourful lip of the leaf that forms a pitcher attracts insects. They fly into the pitcher and are caught in the sticky liquid. They cannot fly out because they have wet wings. They cannot easily climb out because the inner surface of the "pitcher" is smooth. They drown in the liquid, which digests the protein content of their bodies to supplement the plant's supply of nitrogen.

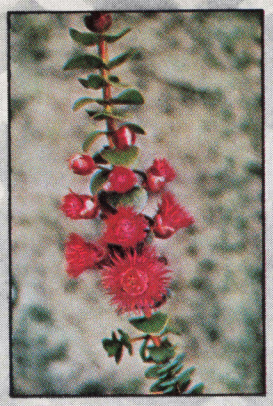
Rafflesias are among the strangest plants that grow in the forests of Indonesia and Malaysia. Flies pollinate these evil-smelling plants. Rafflesias live entirely as parasites on the roots of some members of the vine family. They have no roots or leaves. Their huge reddish-brown flowers, growing more than 91 centimetres across, are the largest flowers in the world.

A large variety of plants grow in the rain forests of the island of New Guinea. They include stately palms, nutmeg trees, and ylang-ylang plants, which have delightfully perfumed yellow-green flowers. The strange saveloy trees bear on their main trunks long strings of pods that resemble sausages.

In New Zealand, beech forests have replaced most of the original rain forest. Semi-jungle also grows in some parts of New Zealand. The yellow flowers of fuchsia shrubs, the red flowers of rata trees, and the beautiful green of cabbage trees, fern trees, and nikau palms relieve the darkness of the trees that grow in these semi-jungle areas. Climbing plants include those of the *Clematis* group, those of the *Convolvulus* group, and supple jacks. Plants of the *Clematis* group include native passions, which have white or yellowish flowers. Plants of the *Convolvulus*

Bottlebrush

Pincushion Plant



Red Morrison Flower

Qualap Bell

Pink Waxflower

Round-Leaf Tea-Tree

Climbing Heath

Fluffy Morrison Flower

Native Fuchsia

group have white, pink, or blue flowers. Most of the New Zealand climbing plants are rather more slender than those of the true jungle.

Open Forests

In Australia, plants that were better able to withstand the increasingly dry conditions have spread into areas that were once rain forests. Trees of the open forests include eucalypts, the group to which gum trees belong, and acacias, which are called *wattles* in Australasia. There are more than 400 kinds of eucalypts and more than 600 kinds of wattles. Some of the eucalypts, such as the beautiful lemon-flowered gums, have spectacular flowers.

Growth in the open forests is not as dense as in the rain forests. Shrubs grow under the taller trees. Many of these shrubs have spectacular beauty. Waratahs are conspicuous among taller shrubs. These plants grow only in Australia. There are four kinds. Two grow in New South Wales, one in the Gippsland area of Victoria and in New South Wales, and one in Tasmania. They bear large heads of bright red flowers. The largest flowers are those of the waratah, the floral emblem of New South Wales. These flowers grow 10 centimetres or more across. Bright red floral leaves surround the flowers. The name *waratah* comes from an Aboriginal word meaning *seen-from-afar*.

Other trees of the open forest include banksias. These trees are related to waratahs. Their flower heads have various colours. They have stiff cylindrical spikes. Old man banksias, gnarled and twisted trees, grow along the coast of New South Wales. They have grey flowers and fantastically shaped fruiting heads. The smaller banksias of the eastern states of Australia include fine leafed banksias, which have golden flowers, and spiny banksias. A great variety of beautifully coloured banksias grow in Western Australia. Scarlet banksias, swamp banksias, and tall banksias are among the most beautiful.

A number of kinds of spider flowers grow in open forest country. These shrubs also are related to waratahs. Spider flowers include red spider flowers and olive spider flowers, which both have red flowers, and pink spider flowers.

New South Wales Christmas bushes, tall shrubs, have small white flowers. Later, a greatly enlarged and reddened *calyx* (outer covering) surrounds the developing fruit of these shrubs.

Heathlands

In Australia, the areas in which flowers grow best have light soil, through which water can drain easily,

Thistle Y. Harris; Perier Productions

Prickly Richea

Prostrate Parrot Bush

Albany Pitcher Plant

Silky Oak

Yellow Kowhai

and a fairly low rainfall. These areas include the southern and western parts of Western Australia that are known as the *sandplains country,* the coastal belt of Queensland that is known as the *wallum country,* most of the coast of Tasmania, the Grampians in Victoria, and the more infertile part of the sandstone areas of New South Wales. In these areas, the plants do not grow tall. Most of them have fine leaves, but many have prickly leaves. Their flowers include blooms of almost every colour and form.

The epacrids (true heaths) have small, bell-shaped flowers at the ends of the stems or between the leaves and the stems. The flowers are so densely crowded that they give the appearance of flower-heads. These heaths include the common heath, the floral emblem of Victoria. Common heaths also grow in Tasmania and New South Wales. They grow only a few inches tall and bear beautiful cream, pink, or red flowers. The native fuchsias of New South Wales are taller plants. Their long, narrow red flowers are tipped with white. Fivecorners also belong to this family. They are called *fivecorners* because of the five-cornered succulent "berries" that they produce. The flowers are large and the petals are curled back, exposing long protruding stamens. Pink fivecorners, red fivecorners, and green fivecorners grow in eastern Australia. Slender fivecorners, which have yellowish or white flowers, grow in Western Australia.

Ground berries are closely related to fivecorners. Their flowers are narrowed at the tip. Red ground berries of eastern Australia have brilliant red flowers. Fringed ground berries of Western Australia have purple and green flowers.

Richeas are spectacular heaths. Most of them grow only in Tasmania. The most attractive of them, prickly richeas, are prickly bushes that grow up to several feet in height. In summer, they have large spikes of flaming red, pink, or cream narrow bell-shaped flowers.

Plants of the boronia family are common on heathlands. True boronias have four open petals and eight stamens. Sydney boronias grow along the entire coast of New South Wales and into Victoria. They have showy pink flowers. Brown boronias grow in Western Australia. They have a strong scent. Their petals are yellow inside and brown outside.

Waxflowers are like boronias. But most waxflowers are larger and have 5 petals and 10 stamens. Pink waxflowers have greyish-green foliage. They have large, attractive, light pink flowers in spring. Red waxflowers have dark green foliage. They have deep pink blossoms in winter. Both these plants grow in the sandy stretches of the New South Wales coast.

Native fuchsias of the *Correa* group also belong to the boronia family. But they do not look similar because their petals are joined in the form of tubes.

Many members of the waratah family, including parrot bushes of Western Australia and many spider flowers, grow on the heathlands. Woody pears, which have large woody fruits shaped like pears, grow in Western Australia and New South Wales. Hakeas include needle-bushes, which have needle-like leaves. Hakeas grow in both eastern and western Australia.

Many of the eucalypts grow on heathlands. Botanists divide them roughly into two groups. Plants of one group, such as bottlebrushes and melaleucas, have conspicuous stamens and either small petals or no petals at all. Plants of the other group, such as tea-trees, Geraldton waxes, and native pomegranates, have inconspicuous stamens and large petals that resemble rose petals.

A number of species of bottlebrushes grow in eastern Australia. Two species grow in Western Australia. The flowers are small, with long stamens, and are packed closely into heads that resemble bottlebrushes. Many melaleucas grow in Australia. They range in colour from white, cream, lilac, and pink to red. Thyme melaleucas have fluffy purple flowers. They grow on swampy ground in eastern Australia. *Melaleuca hypericifolia* also grows in eastern Australia. The flowers of this species have heads like bottlebrushes. Paper-barks, which are large melaleucas, grow along river-banks and in swamps on both sides of the continent.

Tea-trees have open white, cream, or pink flowers with five petals. Geraldton waxes are similar to tea-trees. They have delicate pink flowers. Native pomegranates spread their orange-red, bell-shaped blossoms along the ground. Later, they grow reddish-orange fruits that look like small pomegranates.

Morrison flowers, which are also called *feather flowers,* are the most beautiful flowers of the western sandplains. Most of them grow only a few inches high. They have small fluffy heads of brilliant red, clear yellow, delicate pink, lilac cream, or pure white.

Flannel flowers with woolly, petal-like leaves grow in the eastern states and in Western Australia. Kangaroo paws, including the prized black kangaroo paws, grow in Western Australia. These plants have unusual flowers on tall stalks.

Rice-flowers, which belong to the *Pimelea* group, grow on the sandplains. Their small flowers cluster together in a head surrounded by a large number of coloured leaves.

Trigger plants grow in various parts of the heathlands. Insects pollinate these plants. Each plant has a trigger mechanism at the base of its flower. When an insect goes into the flower in search of the nectar within, it sets off the trigger. A structure hits the insect on the back, bursting ripe sacs of pollen over it. Later, the same mechanism strikes another insect carrying pollen from another flower, and picks up pollen.

Various swamp plants, such as Albany pitcher plants of Western Australia and sundews, catch insects and extract nitrogen from their bodies.

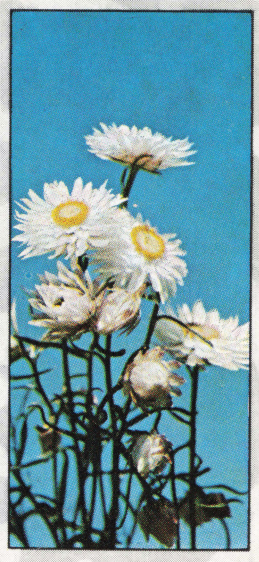
In New Zealand, *manukas* (tea-trees) largely cover the heathlands. Other plants that grow in these areas include daisies, whitebeards, snowberries, Wild Irishmen, fuchsias, and red and yellow kowhais.

Savannahs and Deserts

Areas of level grasslands called *savannahs* exist in Australia and in the western parts of Papua, where the rainfall is low. Savannahs in the driest parts of Australia are like deserts. Many kinds of grasses and a variety of shrubs grow on the Australian savannahs,

Sturt's Desert Pea

Gentian



White Everlasting

White Wind Flower

Cushion Bush

Thistle Y. Harris

but only a few scattered trees grow there. Emu bushes, which have red, pink, yellow, or white flowers, are among the most attractive plants of these areas. Many of them have spots or streaks on the petals. Many kinds of spider flowers and hop bushes grow on the savannahs.

Wattles, including small trees such as myalls, mulgas, gidgees, and borees, and shrubs such as dead finishes, spearwoods, and iron woods also grow in these areas. Another shrub of this area is wilga, a member of the boronia family. It has white flowers. At certain times of the year, the savannahs are coloured by the purple or bronze blossoms of the pea flowers called *swainsonias* or by the brilliant red blossoms of Sturt's desert peas. The savannahs of Papua resemble those of northern Australia. They have rolling plains and scattered trees. Banksias, wattles, and other shrubs grow there.

Mountains

In Australia, alpine flowers grow on mountains 1,800 to 2,100 metres above sea level on the mainland and 910 to 1,200 metres in Tasmania. Plants like cushions, with pink, white, or yellow flowers, flourish on the boulders. These plants include alpine mint-bushes, boronia, heaths, buttercups, and creeping tea-trees. Other plants include small, erect yellow billy buttons, spectacularly blue bluebells, and delicate purple, pink, or white snow daisies.

In Indonesia, Malaysia, and New Guinea, oaks and other trees grow in areas between 1,500 and 2,700 metres. Rhododendrons and orchids grow at these levels in New Guinea and in places above 2,700 metres in Indonesia and Malaysia. Areas above 3,350 metres in New Guinea have no trees but have a covering of snow grasses. Gentians, buttercups, and everlastings grow there. Many plants in these high areas have close relatives in other countries.

In New Zealand, many daisies grow in areas between 900 and 1,200 metres. Small flowering plants grow in areas from 1,800 metres to the line of perpetual snow, where all vegetation ceases. Most of these plants have attractive flowers. They include snowberries, bluebells, silver daisies, and billy buttons. Other plants include cushion bushes, white buttercups, and penwiper plants.

Aids to Learning

Related Articles. See FLOWER, with its list of related articles and AUSTRALIA (Plants) in the main volumes. See also the following articles in the Australasian volumes:

Ferns Lianas Trees

Outline of this article is as follows:

I. **Rain Forests**
   A. In Australia
   B. In Indonesia, Malaysia, and New Guinea
   C. In New Zealand
II. **Open Forests**
III. **Heathlands**
IV. **Savannahs and Deserts**
V. **Mountains**

Books to Read about this topic include:

Harris, Thistle Y. *Wild Flowers of Australia*. Angus and Robertson, 7th ed., 1971.

Henderson, Murray Ross. *Common Malayan Wildflowers*. London, Longmans, 1961.

Hughes, Helen. *Flowers of the South Pacific*. Jacaranda, 1972.

Morcombe, M. *Australia's Wildflowers*. Lansdowne, 1970.

Salmon, J. *New Zealand Flowers and Plants in Colour*. Reed, 1970.

Australian Official Photograph

The Flying Doctor Service makes possible what was once considered impossible—treating on the spot people injured in accidents in the outback.

FLY is the largest river in New Guinea. For location, see AUSTRALIA (colour maps) in this volume. The river rises in the Hindenburg Range and flows for more than 1,100 kilometres to the southwestern part of the Gulf of Papua. At its estuary, it widens to 53 kilometres. Small vessels can travel up the river for more than two-thirds its length.

FLYING DOCTOR SERVICE is an unusual medical service that originated in Australia. Through the service, people living in outback regions receive medical treatment and services. The service, officially known as the ROYAL FLYING DOCTOR SERVICE, maintains 12 major, centrally placed radio bases. These bases are at Broken Hill, in New South Wales; Alice Springs, in the Northern Territory; Charleville, Charters Towers, and Mount Isa, in Queensland; Port Augusta, in South Australia; and Carnarvon, Derby, Kalgoorlie, Meekatharra, Port Hedland, and Wyndham, in Western Australia.

Stations and homesteads in the outback have radio *transceivers* (units that can receive and transmit messages). In case of illness or the need to seek medical advice, people at the stations can make contact with the nearest radio base. A doctor at the base then advises the caller or arranges for an aeroplane to pick up the patient. Doctors make thousands of consultations over the radio each year. The Flying Doctor Service encourages people in remote areas to maintain standard medical kits so that they can carry out their own first aid. In addition, doctors make regular trips by plane around the area under their control. This area often covers a vast territory. At Alice Springs, the service also allows teachers to use the radio facilities to conduct the School of the Air.

In 1926, a South Australian engineer, Alfred Traeger, invented the *pedal wireless,* a radio using a dynamo powered by pedals. He later developed pedal power for transceivers. John Flynn realized that radio and aeroplanes together could extend medical facilities throughout Australia. In 1928, he founded the Flying Doctor Service with the help of Traeger. The first base was at Cloncurry, in Queensland. K. St. Vincent Welch became the first flying doctor. In the first year of the service, he flew over 32,000 kilometres to treat 255 patients. The service developed rapidly.

FLYNN, ERROL (1909-1959), an actor, starred in such films as *Captain Blood* and *Robin Hood.* He was born at Hobart, in Tasmania, and named ERROL LESLIE FLYNN. He worked as a trader and gold prospector in New Guinea. He began his acting career in England in 1934. In 1936, he went to the United States, where he became a film star.

FLYNN, JOHN (1880-1951), was a Presbyterian minister who gained world-wide fame for his work with the Australian Inland Mission and the Royal Flying Doctor Service. In 1912, he recommended that the Presbyterian Church extend medical and religious facilities to the remote areas of Australia. Following his recommendation, church authorities founded the Australian Inland Mission. Flynn was superintendent of the mission for almost 33 years. In that time, he founded 15 inland hospitals, and became known as *Flynn of the Inland.* With the advent of radio, Flynn had a means of overcoming the problem of long-distance communication in the outback. In 1928, he founded the Flying Doctor Service at Cloncurry, in Queensland. He was born at Moliagul, in Victoria. He became a minister in 1911. See also AUSTRALIAN INLAND MISSION and FLYING DOCTOR SERVICE in this volume.

John Flynn
Australian Inland Mission

FOOD PROCESSING is especially important in countries that produce primary goods. They must ensure that food is available at all seasons for all the people. In the great food-producing countries, most perishable foods are processed before being exported.

Australia and New Zealand have relatively small populations and enormous food resources. They export vast quantities of food, and food processing is a major industry. Food processing is the second largest manufacturing industry in Australia. It employs 128,000 people and has an annual output of $A 1,900 million. Its exports, not counting cereals and sugar, earn the country $A 540 million in overseas trade.

Food processing is the third largest manufacturing industry in New Zealand. It employs 40,000 people, has an annual output of $NZ 530 million and earns $NZ 300 million in exports. In Australia and New Zealand, housewives and caterers use a wide range of frozen, canned, and packaged foods.

Malaysia and Indonesia, on the other hand, have large populations to be fed, and many Indonesians suffer from nutritional deficiency, particularly deficiency of protein. Food processing is not highly developed in either country, though Malaysia has a prosperous pineapple canning industry. Most of the people cannot afford the expensive processed foods.

Food Preservation Methods. Foods are processed mainly for protection against spoilage by micro-organisms, such as bacteria, yeasts, and moulds, and to prevent chemical changes caused by enzymes that are naturally present (see ENZYME in the main volumes).

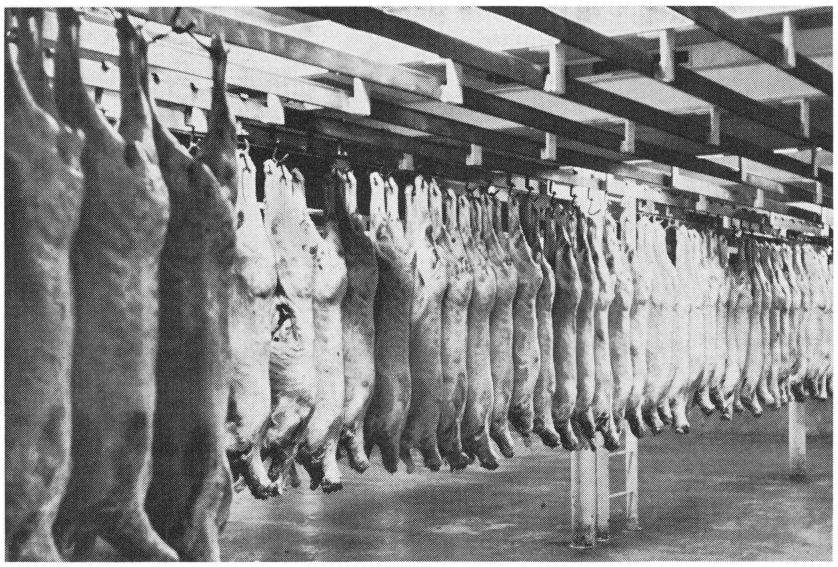
Refrigeration. Low temperatures slow down or prevent the growth of micro-organisms. As a result, refrigeration is a useful method of preserving many foods. At *chilling* temperatures, from 0° to 4° C (32° to 40° F), micro-organisms grow slowly, and meats, fish, dairy products, eggs, and fruit can be stored for short periods.

When fresh fruit is chilled at these temperatures, spoilage by micro-organisms is retarded and the ripening processes are slowed down. Growers in Australia and New Zealand keep their fruit in orchard and district cold stores before sending it to market. Refrigerated ships carry 173,000 tonnes of apples from Australia, and 40,600 tonnes from New Zealand, every year.

New Zealand is the world's biggest exporter of dairy products. Every year, it ships out 356,000 tonnes of butter and cheese as refrigerated cargoes, together with dried milk and canned condensed milk.

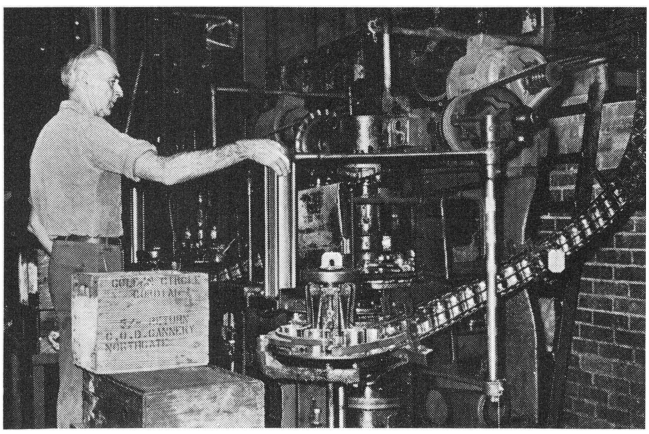
Within Australia, most foods must travel long distances from the areas where they are produced to the areas where they will be consumed. Food is transported in insulated rail-cars cooled by ice and in refrigerated road vehicles.

At *freezing* temperatures, from −18° to −12° C (0° to 10° F), micro-organisms cannot grow at all, and foods may be kept for long periods without spoilage. In New Zealand, 37 freezing works employ 20,000 workers and export 508,000 tonnes of frozen



Gert. D. Wolff; Beverley Clifford

Meat is stored in refrigerated warehouses before being distributed to butchers.



Fruit is preserved mainly by canning. The chief canned fruits in the Australasian area include apricots, peaches, pears, and pineapples.

meat each year. Australia exports a similar quantity of frozen and canned meat, and frozen crayfish tails bring in an export income of $A 12 million each year.

In Malaysia and Indonesia, fish is the most important source of animal protein, because meat animals are scarce. Many people do not eat certain meat, for religious reasons. Indonesian fishermen catch almost a million tons of salt- and fresh-water fish each year. Malaysia's annual catch is more than a quarter of a million tons. Most of the fish is marketed fresh, but, in these hot countries, fish will not keep fresh much longer than 12 hours. Ice is used to preserve fish on the boats, during transport after landing, and in retail shops. But ice is expensive, and almost half of the fish are preserved by salting, smoking, or drying.

Salting, Smoking, and Drying all slow or prevent the growth of micro-organisms. Indonesians and Malaysians use fish dried in the sun, with or without salt, in preparing various traditional fish foods.

Salt-curing and smoking are basic processes in the preparation of hams and bacon, which are minor products of the food industry in Australia and New Zealand. In the hot, dry summers of the Murray Valley in Australia, 3,500 families earn a living by drying apricots, currants, peaches, raisins, and sultanas in the sun. This important rural industry earns an export income of $A 20 million.

Canning. Heat can be used to preserve foods, because it destroys contaminating micro-organisms. But the processed food must then be kept free from contamination, usually in hermetically sealed tinplate or glass containers. Canned foods are relatively expensive in Indonesia and Malaysia partly because of the high cost of these containers.

Australia produces and exports large quantities of canned foods. More than 100 factories, employing 9,000 workers, produce 356,000 tonnes of tinned fruits, vegetables, and jams each year. More than 30 factories, with 2,800 workers, produce 71,000 tonnes of condensed milk and dried milk. Fruit canning is especially important in inland irrigation areas, where economic stability depends upon exporting 65 per cent. of the production of canned peaches, pears, and apricots.

Malaysia has 7 factories, canning 50,800 tonnes of the golden-fleshed *Singapore Canning* pineapple and providing employment for 4,500 workers. A plant in Penang cans tuna caught by Japanese fishermen in the Indian Ocean. Japanese interests have also established a fishing base near Jakarta. The Indonesian government has built two experimental fish canneries.

Food-Processing Authorities. Australia, Indonesia, Malaysia, New Zealand, and Singapore all keep some legislative control over food processing, to protect public health, to maintain quality standards, and to encourage orderly marketing. For example, in Australia, departments of health in the various states administer pure foods acts and regulations, which govern the composition, hygiene, packaging, and labelling of processed foods for domestic consumption. The federal Department of Primary Industry enforces exports regulations, which define standards of quality and labelling. The government provides inspectors for all establishments processing foods for export.

In addition to direct governmental control of this type, the exporting countries have set up semi-governmental boards, including representatives of producers and processors, to control the marketing of specific commodities. Australia has marketing boards for canned fruits, apples and pears, dried fruits, meat, dairy produce, and eggs. New Zealand has marketing boards for dairy products and apples and pears, and Malaysia a board for canned pineapple. Some of these boards exercise general control over export selling by manufacturers and their agents. Other boards, particularly in New Zealand, acquire the commodities and handle all marketing. In Malaysia, the Pineapple Industry Board licenses canneries, administers grading and labelling regulations, and maintains the inspection system.

History. Australia and New Zealand were pioneers in food processing, because food exports have always been essential to their economies. Australia established its first major cannery in 1847. It was so successful that by 1856 there were 15 canneries in Australia, and exports of canned meat reached a total of 7.3 million kilograms in 1880.

During the late 1800s, refrigeration became the dominant process in meat preservation. In 1851, James Harrison established the world's first ice-making works in Geelong. Twenty years later, Thomas Mort set up the world's first meat-freezing works in Sydney, and, in 1879, a cargo of 41 tonnes of frozen meat reached London in excellent condition. A successful shipment from New Zealand followed in 1882. A world-wide trade in frozen and chilled meats began, and, in 1887, refrigerated ships began to carry apples as well.

Scientists intensified research into methods of food processing during the Boer War and the two world wars. The armed services needed enormous quantities of preserved food. During World War II, dehydration of meat, eggs, and vegetables was first undertaken on a large scale. Since that time, dehydrated foods have become widely accepted as a result of significant improvements in technique. Production of a range of freeze-dried foods began in New Zealand in the mid-1960s.

Canning of pineapple in Malaysia and Singapore has developed since the beginning of the 1900s from a small shop-house industry into one of the largest single-fruit canning industries in the world. In 1939, shipments of canned pineapple from Singapore reached a record value of $M 10 million. During World War II, the industry virtually disappeared. But, by 1948, six canneries had been reopened, and production has now regained its earlier levels.

In Indonesia, food processing is on a small scale. But the government, aided by international agencies, such as FAO and UNICEF, and by the Colombo Plan, is encouraging food-processing developments in the country.

See also FOOD PRESERVATION in the main volumes and its list of related articles.

FOOTBALL. See AUSTRALIAN RULES FOOTBALL in this volume; RUGBY LEAGUE, RUGBY UNION, and SOCCER in the other Australasian volume.

FOR THE TERM OF HIS NATURAL LIFE. See LITERATURE OF AUSTRALIA (The Development of the Novel) in this volume.

FORBES, SIR FRANCIS (1784-1841), was the first chief justice of New South Wales. He held the position from 1823 to 1837. As chief justice, he considered that the colonists looked upon him as their protector against the absolute powers of the governor. He did much to introduce trial by jury. As part of his duties, he had to ensure that any laws passed in the colony were not opposed to any principle in British law. He was born in Bermuda, where he became attorney-general, then advocate-general in 1813. In 1816, the British government appointed him chief justice of Newfoundland.

FORBES, GEORGE (1869-1947), became prime minister of New Zealand in 1930 as leader of the United party in parliament. After the election of 1931, he was prime minister in the coalition administration elected to face the world-wide economic depression. His government was defeated in 1935. He was born at Lyttelton, in the South Island, and attended Christchurch Boys' High School. He entered parliament in 1908 as member for Hurunui. From 1912 to 1922, he was the whip for the Liberal party. He retired from politics in 1943.

FORDE, FRANCIS (1890-), an Australian politician, was prime minister of Australia for the seven days from July 6 to July 12, 1945. During World War II, he was deputy prime minister to John Curtin, as well as minister for the army. When Curtin died, Forde succeeded him. But, only six days later, Ben Chifley was elected prime minister.

Forde was born at Mitchell, in Queensland, and named FRANCIS MICHAEL FORDE. He first entered the federal parliament in 1922. In 1929, he became a minister in the Labor government. In 1932, the Australian Labor party elected him deputy leader. From 1946 to 1953, he was the Australian high commissioner in Canada.

FORESTRY is an important industry in Australasia. Australia and New Zealand have large natural forests, but the authorities continually carry out *reafforestation* programmes—that is, planting saplings to replace trees that have been cut down. They also improve the existing types of trees and introduce new types. In Australia and New Zealand, which have mainly temperate climates, trees do not grow as fast as in Indonesia and Malaysia, which have tropical climates. The forests would soon be wiped out if replanting did not take place.

The forestry industry in Indonesia and Malaysia is handicapped because of inaccessible forests, much poor timber, and insufficient funds for development. But trees in these countries grow rapidly in the hot, damp climate.

Australia has about 2,100,000 square kilometres of forest. But less than 7 per cent of this forest is being used productively. Of the 400 species of eucalypts, only about 100 are exploited for their timber and only 40 are milled extensively. Sawn timber from eucalypts amounts to about 2.4 million cubic metres a year. Of the native softwoods suitable for milling, only the cypress pine and small quantities of hoop pine remain. But softwood plantations, mainly of radiata pine, are growing rapidly to meet the demands of the paper, pulp, and timber industries. Most of the plantations are in the southeastern states, particularly in South Australia. In the mid-1960s, the plantations totalled 2,540 square kilometres and provided 1.1 million cubic metres of *roundwood* (unprocessed logs) a year.

Fire is a recurrent danger in the hot, dry Australian climate. But eucalypts show a remarkable capacity for survival and often recover quickly after fire has swept through a forest. Fire generally means complete destruction for pine trees. Rangers on plantations keep watch for fires from patrol stations. The authorities also forbid lighting fires in certain areas during periods of high fire danger. See BUSH FIRES in this volume.

Forests cover about a quarter of Indonesia. During the 1950s, the Dutch government offered to help the Indonesian government with forestry development and reafforestation under a five-year plan for the period 1956 to 1960. But the plan was discontinued after relations between the two countries became strained in 1957. The Indonesian government had neither the organization nor the funds to carry out a similar plan. It made some attempts to plant forests on the land. But mainly the old system dominated. Under this system, the forests are cleared to make room for *ladang* (dry fields). Afterwards, grasses grow, and, in turn, are replaced by second-growth forest. Repeated clearing impoverishes the forest, particularly where fire is used for clearing.

About two-thirds of Malaya is forested. But Malaysian timber is generally of low quality and many of the forests are inaccessible. Sabah and Sarawak produce some good wood, including teak. The government is aware of the need for forestry development and reafforestation in the exploited areas, but it has insufficient funds to carry out this kind of programme. As a result, second-growth forest replaces felled trees.

When European settlement of New Zealand began, most of the country was covered in dense evergreen rain forest. But timber milling reduced the 113,200 square kilometres of forest that existed in the 1800s to 56,591 square kilometres in the 1960s. More than 44,550 square kilometres of this total are inaccessible, are unsuitable for milling, or are being preserved. In the 1920s, the New Zealand Forest Service became responsible for the forests.

The radiata pine proved to be the most successful of the trees introduced to New Zealand. More than 8,100 hectares of these pines are planted each year. The pines grow faster than they do in California—their native region—and mature in 30 years. By the mid-1960s, the radiata pine accounted for two-thirds of the total timber milled in New Zealand.

See also FOREST AND FOREST PRODUCTS and LUMBER in the main volumes; FLOWERS in this volume; PULP AND PAPER INDUSTRY, TIMBER INDUSTRY, and TREES in the other Australasian volume.

FORREST is the family name of two brothers who did much for Australian exploration and politics.

Sir John Forrest (1847-1918) led expeditions across Western Australia between 1869 and 1874. In 1876, he entered the Western Australian Legislative Council. When the colony gained responsible government in 1890, he became its first premier. He advocated federation of the Australian colonies during the 1890s. In 1901, he was elected to the first federal parliament. He was born at Bunbury, in Western Australia.

Alexander Forrest (1849-1901) accompanied his brother on his expeditions and, in 1879, led his own expedition into the northern regions of Western Australia. In 1890, he became a member of the first state parliament. He was born at Bunbury.

FORT DENISON was built on an island in Sydney Harbour between 1841 and 1857. In the early years of settlement, before a prison was built on shore, the authorities sometimes marooned criminals on the island for long periods with only small amounts of rations. Its popular name, *Pinchgut,* derived from this practice. The fort now houses a seismograph, a lighthouse, and a tide gauge.

FOUNDATION DAY is an annual public holiday in Western Australia. It celebrates the arrival from England in 1829 of James Stirling and the first party of settlers in the transport *Parmelia.* They founded the Swan River settlement, the first settlement in what is now the state of Western Australia. Foundation Day is actually June 1, but the holiday is held on the first Monday in June. The main activities are a flag-raising ceremony at Fremantle and a pioneers' memorial service in the historic East Perth cemetery on the preceding Sunday.

FOVEAUX STRAIT separates the South Island of New Zealand from Stewart Island. It is between 24 and 34 kilometres (15 and 21 miles) in width.

FOX, SIR WILLIAM (1812-1893), was four times premier of New Zealand. He first became premier in 1856, but only for two weeks. He later served in 1861 and 1862, from 1869 to 1872, and briefly in 1873. Fox strongly opposed moves to abolish the country's system of provincial government. He was born at Westoe, near South Shields, Durham, in England. He migrated to New Zealand in 1842, and entered politics in 1855.

FOX, WILLIAM WALKER (1837-1925), was a pioneer educator in Tasmania. He was born in England and educated at London University. In 1863, he became headmaster of Horton College for boys in Tasmania, which had been established by the Methodist Church. Using the latest English methods and courses of study, he continued in this position until ill health forced him to resign in 1889. Today nothing remains of Horton College.

FOXES are a serious pest in Australia. They kill native animals such as small marsupials and ground birds and also attack poultry, lambs, and weak sheep. Spotlight shooting is the best form of control, but state government rangers offer advice to farmers on other methods on request. The first foxes were imported for sport. The first imported fox was pursued at Randwick, in New South Wales, in 1855. During the 1900s, foxes multiplied rapidly. They were declared a noxious pest and bounties were offered for their scalps.

FRAME, JANET (1924-), a New Zealand writer, gained an international reputation as a novelist during the late 1950s and early 1960s. Many critics compared her with New Zealand's most famous writer, Katherine Mansfield. Her books have great poetic sensitivity and show deep understanding of the minds of mentally disturbed people. Her novels include *Owls Do Cry,* published in 1957, and *Faces in the Water* and *The Edge of the Alphabet,* both published in 1962. Janet Frame was born at Dunedin.

FRANKLIN, LADY (1792-1875), was the wife of the governor and Arctic explorer Sir John Franklin (see FRANKLIN, SIR JOHN, in the main volumes). During his term as governor of Tasmania, from 1837 to 1843, she did much to improve the situation of female convicts. She also encouraged the cultural and educational development of the colony. She organized five expeditions from 1848 to 1857 to learn the fate of her husband's last expedition, adding greatly to the knowledge of Arctic regions. She was born in London and named JANE GRIFFIN. She married in 1828.

FRANKLIN, MILES (1879-1954), an Australian author, gained a major reputation as a novelist of the countryside. Her books include *My Brilliant Career,* a study of the frustrations of youth in a pioneering society. She also wrote novels under the pen-name BRENT OF BIN BIN, including *Up the Country* and *Back to Bool Bool.* Her full name was STELLA MARIA SARAH MILES FRANKLIN. She was born at Talbingo, in New South Wales. The terms of her will provided for the annual Miles Franklin Literary Award.

FRASER, DAWN (1937-), an Australian swimmer, won three successive gold medals in the women's 100-metre free-style race at the Olympic Games. She won this event in the games held in Melbourne in 1956, in Rome in 1960, and in Tokyo in 1964. She was also the first woman to swim this distance in less than a minute, with a time of 59·5 seconds at Tokyo in 1964. Her time at Rome was 1 minute 1·2 seconds, and at Melbourne 1 minute 2 seconds. Dawn Fraser was born in Sydney. See SWIMMING (picture) in the other Australasian volume.

FRASER, NEALE (1933-), an outstanding Australian tennis player, won the United States singles title in 1959. In 1960, he retained his American title and won the Wimbledon title. From 1959 to 1962, he helped Australia to win the Davis Cup. He was manager of the Australian team in 1965. Fraser was born at Melbourne.

FRASER, PETER (1884-1950), was prime minister of New Zealand from 1940 to 1948. He was a leading figure in the labour movement and during his political career he worked to provide an extensive social service programme for his country. He headed New Zealand's war effort during World War II. Fraser was born at Fearn, in Scotland, and went to New Zealand in 1910. He was elected to parliament in 1918, and became secretary of the New Zealand Labour party in 1919.

FRASER ISLAND, also called Great Sandy Island, is the largest sand island in the world. It lies across Hervey Bay, on the south-eastern coast of Queensland, and shelters the entrance to the port of Maryborough. The island has an area of more than 1,554 square kilometres (600 square miles). It has many freshwater lakes. The largest, Lake Boemingen, covers more than 200 hectares (500 acres). Part of the island is a forestry reserve with about 26,300 hectares (65,000 acres) of commercial forests.

FREE SETTLERS. See IMMIGRATION AND EMIGRATION (History) in this volume.

FREEDOM FROM HUNGER is a worldwide information programme planned by the Food and Agriculture Organization of the United Nations. The Australian branch of the organization was founded in 1961. Between 1961 and 1972, it raised $A 12 million to alleviate hunger in other countries. It collaborated in this work with the Australian Catholic Relief, Australian Council of Churches, and other groups. Normally the funds are spent to bring immediate relief outside Australia. But in 1970, Freedom from Hunger supported Sydney's Aboriginal Medical Service. A national committee in Sydney decides how Australians can take effective part in international projects. It corresponds with similar overseas bodies. State committees work to promote membership, organize public meetings, and organize financial appeals at local level. Voluntary collectors take part in an annual doorknock appeal.

FREMANTLE (pop. 25,990) is the third busiest port in Australia, after Sydney and Melbourne, and the chief port of Western Australia. It lies at the mouth of the Swan River, about 19 kilometres (12 miles) from Perth. Its industries refine sugar, scour wool, make fertilizer, build ships, and make paint and furniture. Fremantle imports crude and refined oil, iron and steel products, fertilizers, motor bodies, coal, paper, timber, livestock, and sugar. It exports petroleum products, grain, iron and steel products, wool, fruit, flour, and livestock. The standard gauge rail line links Fremantle with all mainland capital cities of Australia. Fremantle is named after Sir Charles Howe Fremantle, who took possession of the western coast of Australia for Britain in 1829. Its harbour, designed by C. Y. O'Connor, was opened in 1897.

FRENCH, JOHN ALEXANDER (1914-1942), an Australian corporal, was awarded the Victoria Cross for heroic action in World War II. French was killed in action on Sept. 4, 1942, when his battalion attacked a Japanese position east of the Buna Mission. This led to defeat of the Japanese at Milne Bay in New Guinea.

French was born at Crows Nest, Queensland. His battalion served at Tobruk and in Syria. It returned to Australia in March, 1942, and embarked for Milne Bay in New Guinea the following August.

FREYBERG, BERNARD (1889-1963), BARON FREYBERG, was a British military commander in World Wars I and II. He was born in London, and was educated at Wellington College, in New Zealand. In 1916, he won the Victoria Cross and was promoted to brigadier-general. Throughout World War II, he commanded the New Zealand Expeditionary Force. In 1941, he commanded the Allied forces in Crete. Later, he fought in northern Africa and in Italy. From 1946 to 1952, he was governor-general of New Zealand. He became a peer in 1952.

FRILLED LIZARDS are large lizards of tropical northern Australia. They grow to more than 900 millimetres (3 feet). They are instantly recognizable by the bright-coloured frills around their necks. When alarmed, they expand their frills, open their bright yellow mouths, and hiss. Despite their fearsome appearance, they are not venomous.

Scientific Classification. Frilled lizards belong to the family *Agamidae* and the genus *Chlamydosaurus*. They are species *C. kingii*.

See also LIZARD (colour picture) in the main volumes.

FROGS. See AMPHIBIANS in this volume.

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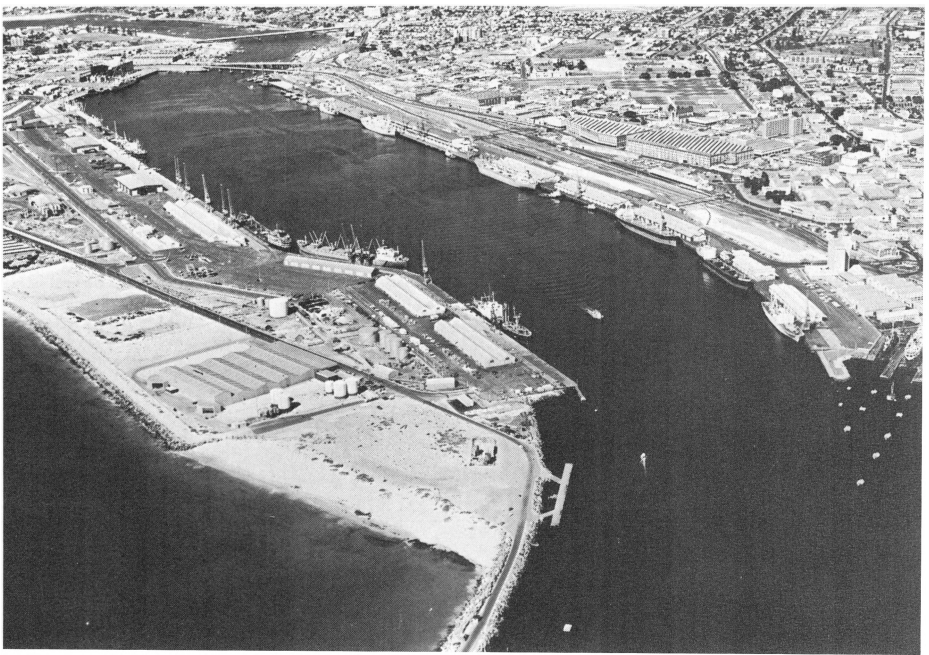


Fremantle, in Western Australia, is Australia's principal port on the Indian Ocean. The man-made harbour, on the Swan River, was opened to shipping in 1897.

FRUIT GROWING

FRUIT GROWING is a flourishing industry in Australia and New Zealand, and is also important to the economies of Indonesia, Malaysia, and Singapore. The climate of these regions varies from tropical to cool temperate, and farmers can grow nearly all kinds of fruits. The five countries produce more than one-tenth of the world's pineapples, and large amounts of apples, pears, peaches, citrus, and coconuts, much of which they export to other countries. Farmers in Indonesia and Malaysia grow many other fruits, including large quantities of bananas, but most of these are tropical fruits and are sold and eaten in the district where they are grown.

Kinds of Fruits

Tropical Fruits grow in a warm climate with a rainfall of at least 1,270 millimetres (50 inches) a year. Most tropical plants cannot withstand temperatures below 13° C (55° F). Some kinds of tropical fruits, such as mangoes, are ruined if wet weather occurs when the trees are in flower.

Farmers grow bananas in many villages in Malaysia and Indonesia, but the fruit is a major commercial crop only in Australia. In Malaysia, pineapples are grown mainly on large estates, but some are grown on small farms. In Australia, they are grown mainly on small farms. In each country, canning factories are situated close to the growing areas.

Pineapples are grown mainly in Queensland with about 5,500 hectares (13,590 acres) under cultivation. Only about 130 hectares (321 acres) are grown in northern New South Wales. Most of the Australian crop is canned. Pineapple plants grow to an approximate height of 0·6 metre (2 feet) and commence cropping around 18 months from planting. Normal bearing life of plants consists of one main crop and two *ratoon* (new shoot) crops.

Other tropical fruits of Indonesia and Malaysia include chempedaks, chikus, dukus, durians, mangoes, mangosteens, rambais, and rambutans. In Australia, other tropical fruits of local importance include mangoes and *papaws* (papayas).

Subtropical Fruits grow in a fairly warm climate with a rainfall of 254 to 1,270 millimetres (10 to 50 inches) a year. The plants withstand light frosts, but usually stop growing in winter. Economically, citrus fruits, especially oranges, are the most important subtropical fruits.

In Australia, most subtropical fruit is grown near Sydney, on the coast of New South Wales, and, inland, in the Murrumbidgee and Murray irrigation areas of New South Wales, Victoria, and South Australia. Other areas are near Brisbane in Queensland, and near Perth in Western Australia. Avocados are grown in Queensland and New South Wales. In New Zealand, subtropical fruits are grown near Auckland, in the North Island. Mandarins are grown in Perak, Malacca, and Johor states, in Malaysia.

Temperate Zone Fruits grow best when a period of cold weather interrupts growing seasons. Most temperate zone plants lose their leaves in the cold season, and are unaffected by even quite severe frosts when they are in this dormant condition. They need a rainfall of 762 to 1,016 millimetres (30 to 40 inches) during the growing season.

Temperate zone fruits include *pome fruits,* such as apples and pears; *stone fruits,* such as peaches, apricots, plums, and cherries; *berry fruits,* such as raspberries, loganberries, blackberries, and strawberries; and grapes.

Australian farmers grow the largest amounts of temperate zone fruits. Victorian and Tasmanian farmers grow pome fruits. Other farmers grow temperate zone fruits and citrus fruits in the irrigation districts of the Murrumbidgee and Murray rivers. Berry fruits need colder weather, and are grown in Tasmania and Victoria. Strawberries also grow in New South Wales and Queensland.

Fruit-Growing Regions

Farmers grow fruit wherever there is a suitable climate and sufficient demand. The population centres of Australia and New Zealand lie in the subtropical and temperate zones, and the fruit industries of these countries have developed mainly in these regions.

In some regions of Indonesia and Malaysia, businessmen have established estates for growing coconuts and pineapples for world markets. But most fresh fruit is grown by villagers, and sold and eaten in the area where it is grown. Many tropical fruits of these regions are unknown in other parts of the world, because no one has found a way of keeping them fresh long enough to export them successfully.

Australia. The main Australian fruit crops, in order of importance, are grapes, apples, citrus fruits, stone fruits, and bananas.

South Australia and Victoria are the most important states for grapes.

Farmers in Victoria produce most of the *dried vine-fruits* of Australia. Such fruits include raisins and sultanas. Farmers grow the bulk of the crop in the Sunraysia district, near Mildura. In New South Wales, dried vine-fruits are produced in irrigation

FRUIT PRODUCTION IN AUSTRALIAN STATES—TONNES

FRUIT	N.S.W.	VICTORIA	QUEENSLAND	SOUTH AUSTRALIA	WESTERN AUSTRALIA	TASMANIA	NORTHERN TERRITORY	AUSTRALIA
Apples & pears	84,380	21,008	39,606	32,430	57,956	120,300	—	544,754
Berry fruits	289	1,400	832	621	112	85		3,339
Citrus	151,435	47,283	36,783	114,870	12,391	—	—	362,762
Stone fruits	50,440	78,620	8,160	32,760	4,340	700	—	177,020
Bananas	92,056	—	29,898	—	5,660	—	228	127,842
Pineapples	1,031	—	153,244	—	—	—	19	154,294
Grapes	157,794	367,498	5,364	261,571	10,457	—	—	802,684
Tree nuts	39	87	59	1,345	9	—	—	1,539

Source: Commonwealth Bureau of Census and Statistics, Canberra.

districts along the Murray River. Dried vine-fruits are also produced in the Swan Valley, near Perth, in Western Australia.

Tasmania is the leading state for apple growing. Farmers grow most of the apples in the valleys of the Derwent and Huon rivers, near Hobart. Farmers in Victoria also grow apples. The most productive districts include the Mornington peninsula, and the areas around Harcourt and Castlemaine, all near Melbourne; the Gippsland region; and the Goulburn valley. In New South Wales, main apple production is from Batlow, Orange, and Armidale on the uplands of the Great Dividing Range. Apple districts in South Australia lie in hill country just north of Adelaide. In Western Australia, they are close to Perth.

New South Wales is the main state for citrus fruits. Important districts lie near Sydney, near Gosford, in the Murrumbidgee irrigation areas, and near Narromine. Irrigation districts along the Murray River in which much citrus fruit is grown include those at Mildura, in Victoria, those at Renmark and Berri, in South Australia, and those at Dareton and Barham, in New South Wales. Farmers grow citrus fruits also in a small area near Perth.

Indonesia. Soft fruit is not grown commercially on a large scale in Indonesia. Coconuts are the third most important crop, after rice and maize.

Malaysia. Coconuts are the most important fruit crop in Malaysia. They make up about 8 per cent. of all crops cultivated in the country. The main centres of coconut growing in Malaysia lie on the west coast of the Malay Peninsula, in Johor, Penang, and Perak. Coconuts are also cultivated along the east coast of the Malay Peninsula, near Kudat, in Sabah, and in the First and Second divisions of Sarawak. Pineapples also are grown commercially, chiefly in Johor, Selangor, and Perak.

New Zealand. Apples are by far the most important fruit crop in New Zealand. Pears, citrus fruits, Chinese gooseberries, strawberries, tamarillos, and stone fruits also are of considerable value. The main fruit-growing districts lie near Auckland, on the east coast of the Bay of Plenty, in Hawkes Bay province, and near Christchurch.

New Zealand has the world's largest *Chinese gooseberry* (kiwi fruit) industry, centred around the Bay of Plenty in the North Island. Over 2,000 tonnes (1,968 tons) of this fruit are produced in New Zealand and large quantities are exported to many countries including Australia. New Zealand is also an important producer of *tamarillos* (tree tomatoes) and much of the crop is also exported. Both of these fruits are regarded as being highly nutritious.

Fruit-Farming Methods

Most Australian orchards are from 8 to 16 hectares (20 to 40 acres) in size, but some may be 240 hectares (600 acres) or more. In some irrigation regions, the size of farms is limited to about 16 hectares (40 acres). In many districts, a farmer may grow a variety of crops, including citrus fruits, grapes, and pome and stone fruits. Farms are highly mechanized. Farmers use tractor-drawn implements to till the soil, and engine-driven spray machines to control pests and diseases.

In Malaysia and Indonesia, farms are small, varying in area from 1 to 4 hectares (2 to 10 acres). Farmers use traditional methods. In most areas, fruit is less important than such crops as rubber, palm oil, and rice.

Selling the Fruit

Australia and New Zealand produce large quantities of fruit for their home markets. In Australia, each person eats, on average, 75 kilograms (165 pounds) of fresh fruit a year. Farmers pack much of the fresh fruit on their farms. Most of the rest is packed in large sheds co-operatively owned by local farmers. Trains and motor vehicles carry the fruit to markets in the cities, where agents sell the fruit to retailers.

In Malaysia and Indonesia, farmers sell fresh fruit in village and city markets. In the case of coconuts, the meat is treated to remove coconut oil, which is sold directly to merchants and factory owners.

Fruit is also exported, particularly from Australia. Australia is a major exporter of apples, canned fruits such as peaches, pears, and pineapples, and dried vine-fruits. It also exports citrus fruits and soft fruits such as peaches to the Pacific area. Apples and pears make up the bulk of Australia's exports of fresh fruit. About 30 per cent. of Australia's apple crop is shipped under cold storage, mostly to Britain. Sixty per cent. of its canned fruit and 70 per cent. of its dried fruit is exported, again chiefly to Britain.

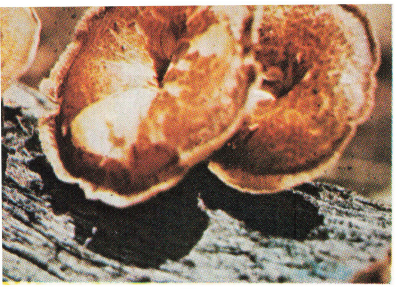
Copra and coconut oil are important exports from both Malaysia and Indonesia. Indonesia is the world's second biggest supplier of copra and coconut oil, after the Philippines. Malaysia and Singapore export 40,000 tons of canned pineapples a year. Apples, Chinese gooseberries, strawberries, and tamarillos are the main fresh fruits exported from New Zealand.

A fruit continues to be a living organism even after it has been harvested, but gradually ages until it dies. In other words, apart from bruising and attack from bacteria and fungi, fruit has a definite life span. Life processes, including the activity of micro-organisms, are slowed down at low temperatures. For this reason, fruit exporters can keep some fruits, such as apples and pears, for from six to nine months by storing them at or near freezing point. For other fruits, such as oranges, peaches, and plums, the storage time is only about three to six weeks. Most tropical fruits are damaged by temperatures below about 13° C (55° F), and such fruits can be stored for only an extremely short time.

Many fruits ripen after harvest, and exporters increase the storage life of the fruits by picking them before they are mature. For example, growers harvest all bananas and pears before they have completely ripened.

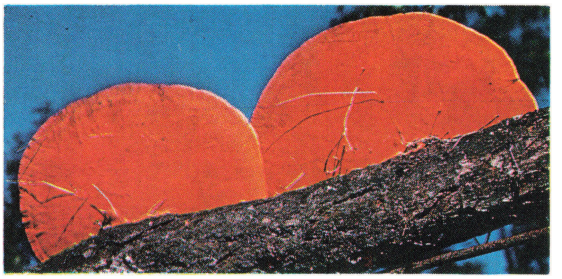
Related Articles. See FRUIT in the main volumes. See also the following articles in the Australasian volumes:
Agriculture Queensland Victoria
New South Wales Tasmania

FUNAN, EMPIRE OF. See HISTORY OF MALAYSIA (Early Empires) in this volume.



Cup Fungus

Red Star Fungus



Thistle Y. Harris

Fiery Red Fungus

FUNGI. All the most common types of fungi grow in various parts of Australasia. Fungi grow best in places with plenty of moisture and warmth. Large fungi grow in tropical and temperate forests.

A large number of fungi can be eaten. Edible fungi of Australasia include common *field mushrooms* and a related type called *shaggy caps* that have a delicious taste. A few fungi are poisonous. These include *fly agarics,* beautiful red fungi shaped like mushrooms. Fly agarics grow in Australia, Indonesia, Malaysia, and the island of New Guinea, but are not widely distributed in these areas.

The types of fungi that grow in Australasia include gill fungi and pore fungi, which belong to the *Basidiomycetes* group, and flask fungi, which belong to the *Ascomycetes* group. See FUNGI in the main volumes.

Gill Fungi, such as toadstools and mushrooms, produce their *spores* (one-celled organisms) in gills on the underside of their heads (see MUSHROOM in the main volumes). Many mushrooms, such as *parasol mushrooms* and *field mushrooms,* live on plant and animal remains in the soil. Many of them have beautiful colours. Some, such as *ghost fungi,* are luminous.

Pore Fungi have their spores in tiny pores on the underside of their *fructifications* (reproductive bodies). Many of them, such as *bracket fungi,* attach themselves to living, dying, or dead trees. Some of them are hard, like wood, and live for many years. Others, such as *fiery red fungi,* have a cork-like texture. Still others are soft, like jelly. A pore fungus called *blackfellow's bread* forms a ball under the ground that pushes its way towards the surface and breaks off in lumps. *Puffballs* and *earth-stars* carry their spores in sacs.

Flask Fungi carry their spores in flask-shaped cells. These fungi include *flame fungi,* which have a beautiful orange-red colour, and *vegetable caterpillars,* which grow in the bodies of living caterpillars. Australia has large vegetable caterpillars that grow fructifications up to 12 inches long.

FUNNELWEB SPIDERS are dangerous Australian spiders. They grow about 2·5 centimetres long, and are black when seen from above. The males have spurs that project from the underside of their second pair of legs. The spiders nest in holes in the ground, with entrances among mats of silk. They spin these mats on the surface of the ground underneath some object, such as a stone, a tree stump, or an iron sheet. Many people are bitten each year by funnelweb spiders. About a dozen deaths have been recorded from funnelweb bites since 1930.

Scientific Classification. Funnelweb spiders belong to the family *Dipluridae.* They are genus *Atrax,* species *A. robustus.*

Anthony Healy

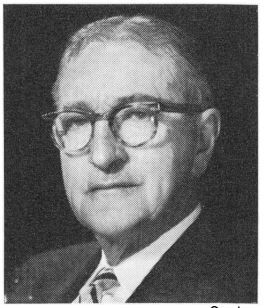
A Funnelweb Spider

FURNEAUX, TOBIAS (1735-1781), a British navigator, explored the coasts of Tasmania and New Zealand during James Cook's second voyage in 1773 and 1774. He commanded the ship *Adventure,* which accompanied Cook's *Resolution.* The ships became parted at sea, and were separated for three months. Furneaux explored an extensive portion of the southern and eastern coasts of Tasmania. In 1773, Maoris killed 10 of his crew while he was anchored at Charlotte Sound, in New Zealand. Furneaux was born near Plymouth, in England. He first went to sea in 1760.

FURNEAUX ISLANDS lie at the eastern end of Bass Strait, between Tasmania and the mainland of Australia. Flinders and Cape Barren islands are the largest of the group. East Sister Island is the most northerly and Clarke Island the most southerly. Farmers on the islands work at stock raising, agriculture, and the mutton-bird industry.

FURPHY, JOSEPH (1843-1912), was one of the most original novelists in Australia at a time when strongly nationalistic themes were prevalent in literature. Under the name of *Tom Collins* or *Warrigal Jack,* he contributed anecdotes to *The Bulletin* (see BULLETIN, THE, in this volume). Tom Collins is the narrator of his most famous book, *Such Is Life,* published in 1903. The book shows Furphy's varied experiences as a farmer and bullock driver, and his interest in socialism. The original manuscript of *Such Is Life* contained two other well-known books—*Rigby's Romance* and *The Buln-Buln and the Brolga.* Furphy was born at Yarra Glen, in Victoria.

FYSH, SIR HUDSON (1895-1974), a leading airman, helped to found the Australian airline Qantas at Winton in Queensland in 1920. He helped to build it into Australia's first international airline. In 1922, his plane carried the first official airmail in Queensland. Fysh was managing director of Qantas from 1923 to 1955, and chairman from 1947 to 1966. He was president of the International Air Transport Association in 1961 and 1962. Fysh was born at Launceston in Tasmania. He served with the army at Gallipoli and in Palestine during World War I. Later, he became a pilot and was awarded the Distinguished Flying Cross. In 1919, with another pilot, P. G. McGuinness, he laid down the first organized air route across Australia, from Charleville to Darwin. He wrote several books on aviation.



Qantas

Sir Hudson Fysh

GAIR, VINCENT (1902-), a senator for Queensland, was parliamentary leader of the Democratic Labor party from 1965 to 1973. VINCENT CLAIR GAIR was born and educated at Rockhampton in Queensland. He entered the railway department there in 1916. He resigned in 1932 to contest the South Brisbane electorate. He served as a member of the Queensland Legislative Assembly from 1932 to 1960. He was secretary for mines from 1942 to 1947. He served as secretary for Labour and Industry from 1944 to 1950. He was deputy premier from 1947 to 1952 and premier from 1952 to 1957. He was elected to the Australian senate in 1965.

GALAHS are pink and grey cockatoos that live in many inland areas of Australia. Many people keep these parrots as pets in cages. Galahs eat the seeds of grasses and other plants. They line their nests with gum leaves. Females lay four or five white eggs. *Galah* is also an Australian slang term for an empty-headed person.

Scientific Classification. Galahs belong to the family *Psittacidae*. They are genus *Kakatoe*, species *K. roseicapilla*.

GALLIPOLI. See ANZAC in this volume.

GAMBLING. Australians and New Zealanders gamble more than $A 500 million each year on lottery tickets, cards, dice, and sporting events, particularly horse-racing. The people of Malaysia and Singapore wager about $M 60 million each year on horse-racing. They also spend millions of dollars on government-approved lotteries and various games of chance. Indonesians spend millions of rupiahs on lottery tickets. Every country taxes gambling. Hospitals and charities receive some of the money from lotteries. New South Wales runs a lottery to finance the building of the Sydney Opera House.

Australia has the reputation of being a country of gamblers. In fact, in proportion to the population, Australians spend less than the people of Britain or the United States. Australians particularly enjoy gambling on horse-racing. They place their money with racecourse totalisators and with licensed and unlicensed bookmakers. All the states, except South Australia, have legal betting shops operated by the Totalisator Agency Board (TAB).

State-approved lotteries are a popular form of gambling. Australians buy about $A 76 million worth of lottery tickets every year.

Card games, dice, and a peculiarly Australian game called *two-up* also attract gamblers. Two-up is a game in which players try to guess whether two coins spun in the air will fall heads or tails. People in New South Wales play *poker,* or *fruit, machines,* which are illegal in all other states. A gambler puts a coin into the machine to set three or four revolving drums in motion. Each drum has a series of symbols. The machine pays out a number of coins if a certain combination of symbols occurs when the drums stop.

Indonesia. The people spend far less on gambling than the people of other countries in Australasia. But they invest millions of rupiahs each month in the government-run main lottery. They also take part in many illegal sweepstakes and lotteries.

Malaysia and Singapore. The Chinese population of Singapore and Malaysia spend most of the $M 200 million that people in the area gamble each year. Betting on horse-racing and lotteries is widespread. Many people play illegal games of chance. The most popular is a lottery called *chap ji kee,* in which one of 36 numbers is chosen daily as the main prizewinner.

New Zealand. The people spend more than $NZ 100 million a year backing racehorses. Most of this goes to totalisators at the racecourses and to legal TAB betting shops. Bookmaking is illegal both on and off the racecourses, but people gamble millions of dollars with bookmakers every year. The government runs a lottery. New Zealanders also buy lottery tickets from agents of the Australian lotteries.

GAME FISHING. See FISHING in this volume.

GARDINER, FRANK (1830-1890), was a bushranger. He was born near Goulburn, in New South Wales. At the age of 20, he was sentenced to five years in Pentridge prison in Victoria for horse stealing, but he escaped five weeks later. In 1854, he was sentenced to seven years at hard labour for the same offence. He was released on ticket-of-leave after four years and joined a gang of bushrangers. In 1862, the gang held up the Forbes gold escort at Eugowra. Gardiner was living as a storekeeper in Queensland when he was finally arrested in 1864 and taken to Sydney for trial. In 1872, he was released after serving 8 years of a 32-year sentence on the condition that he leave Australia. He settled in San Francisco and lived an honest life.

GARRAN, SIR ROBERT (1867-1957), an Australian lawyer, was secretary of the committee that produced a federal constitution for Australia in 1897. He later worked on amendments to make the constitution acceptable to all the Australian colonies. In 1917, he became solicitor-general of Australia. He accompanied the prime minister to the Versailles peace conference in 1919. He was born in Sydney and named ROBERT RANDOLPH GARRAN. He was educated at Sydney University.

GAS INDUSTRY in Australia was revolutionized by the discovery of natural gas in the 1960s. Experts estimate that Australia has reserves of more than 396 trillion litres (14 trillion cubic feet).

Natural gas was first found at Roma in Queensland in 1900. But commercial quantities were not discovered until the 1960s. In South Australia, gas was discovered at Gidgealpa in 1963 and at Moomba in 1966. The most significant field so far discovered is the off-shore gas and oil field in the Gippsland Basin in eastern Bass Strait. Experts estimate that it holds 254 trillion litres (9 trillion cubic feet).

A number of pipelines now provide gas for the capital cities and major industrial areas. In early 1969, Brisbane became the first state capital to convert to natural gas. A pipeline 450 kilometres (280 miles) long links it with the fields at Roma. Two other pipelines were laid that year: one 174 kilometres (108 miles) long from Longford to Dandenong, for Melbourne, and one 780 kilometres (485 miles) long, from Gidgealpa and Moomba to Adelaide. In Western Australia, a pipeline carries gas from Dongara 415 kilometres (258 miles) to Pinjarra and Perth. In the early 1970s, engineers planned a line from north-eastern South Australia to Sydney.

Indonesia has great resources of natural gas. Petroleum fields yield nearly 3 million cubic metres (99,000 million cubic feet) of natural gas each year. Malaysia produces little gas, but Singapore has a growing gas industry.

In New Zealand, the natural gas field at Kapuni, in Taranaki province, was developed between 1959 and 1962. Pipelines were laid 354 kilometres (220 miles) north to Auckland and 290 kilometres (180 miles) south to Wellington. These cities and seven others now receive supplies of gas.

See also PETROLEUM INDUSTRY (map) in the other Australasian volume.

GASCOYNE is a river in Western Australia. It rises to the north of the Robinson Ranges, flows westwards for 680 kilometres (423 miles), and enters the sea at Geographe Channel. The town of Carnarvon stands at its mouth.

GAWLER, GEORGE (1795-1869), a British professional soldier, was governor of South Australia from 1838 to 1841. He arrived in the colony at a time when it was struggling for its existence. Adelaide had about 5,000 settlers, and many of them were unemployed because they could not take up farming until the land had been completely surveyed.

Gawler appointed Charles Sturt as surveyor-general and encouraged him to complete the necessary land surveys. At the same time, Gawler undertook various public projects to provide work for the unemployed. To finance his projects, he made drafts of money in excess of the colony's revenue. The commissioners of the South Australia Colonization Commission refused to honour his bills, and the British government recalled him in 1841. Gawler was born in India and educated at the military college of Great Marlow, in England.

GAWLER RANGE is a series of low, rounded hills in South Australia. It separates the Eyre Peninsula from the semi-desert lands surrounding Lake Gairdner and Lake Torrens.

GEELONG (pop. 115,047) is a city and port in Victoria. It is situated on the shores of Corio Bay, the western arm of Port Phillip Bay, about 72 kilometres (45 miles) south-west of Melbourne. For location, see VICTORIA (map) in the other Australasian volume. It is linked by railway and a four-lane highway with Melbourne. The Prince's Highway, which extends from Sydney to Adelaide, passes through the city.

Geelong is Victoria's second largest port. It handles more than 7 million tonnes (7 million tons) of cargo each year and exports large quantities of wheat. The bulk handling wheat terminal is the largest in the southern hemisphere. The city's heavy industries include oil refining, aluminium smelting, and motor-manufacturing. The city's industries also produce cement, salt, rope, and footwear. Farmers from the surrounding countryside market their produce in Geelong. Graziers sell their wool at large auctions in the city. Farmers also market wheat, milk, butter, fruit, and vegetables in the city.

Geelong is an attractive city with many seaside tourist resorts nearby, some on the bay and others on ocean beaches. It has many gardens including botanical gardens of more than 4 hectares (9 acres) in Eastern Park and 80 hectares (200 acres) overlooking Corio Bay. It has modern municipal and public buildings, an art gallery, and a library.

It is a noted educational centre with two of Victoria's well known associated public schools, Geelong Grammar School and Geelong College. There are also a number of high schools and several technical colleges.

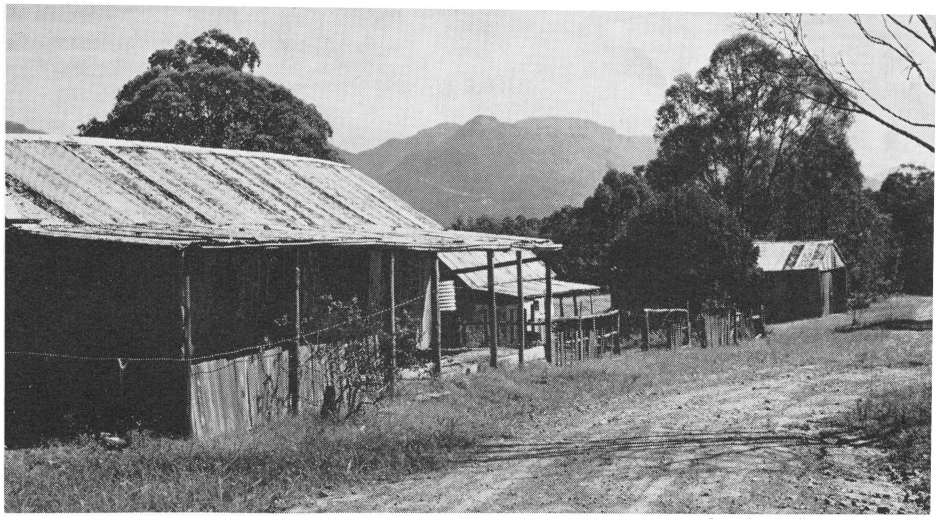
GEMSTONES, apart from opals and sapphires, are not found in large quantities in Australia. Australia is the source of the world's finest opals. See OPAL MINING in the other Australasian volume.

Australia exports sapphires worth about $A 2·5 million a year, mainly to Thailand and France. The Anakie field in south Queensland produces sapphires worth $A 1 million.

Tamworth in New South Wales produces rhodonite. In Western Australia, Broad Arrow produces chalcedony; Ashburton produces amethyst; and Poona produces emeralds. Agate is produced at Southport in Queensland. Australia also exports chrysopase, a translucent green stone.

Many amateurs prospect for gems in the Woolshed Valley near Beechworth in Victoria. Gems from this area include agate, amethyst, carnelian, chalcedony, garnet, sapphire, and topaz. Bingara in the Gwydir River Valley near Inverell in New South Wales has beryl, zircon, sapphires, grass-stone, topaz, and ruby.

See also GEM in the main volumes.



Ghost Towns, such as Yerranderie, in New South Wales, were once busy mining settlements. Today, the workings are overgrown, and the houses are deserted.

Beverley Clifford

GEORGETOWN (pop. 234,855), on the island of Penang, is the chief port and second largest city in Malaysia. For location, see MALAYSIA (colour maps) in the other Australasian volume. It handles exports of copra, iron ore, palm oil, rubber, and tin ore, and imports of rice, sugar, manufactured goods, and building and engineering materials. Georgetown also has shipbuilding, rubber-processing, and tobacco-manufacturing industries. Chinese form the largest racial group in the city. Georgetown was founded by the East India Company in 1786 as the first British base in Malaya. See PENANG in the other Australasian volume.

GEOTHERMAL POWER. See ELECTRIC POWER in this volume.

GERALDTON (pop. 15,330) is a port and holiday resort in Western Australia. It lies on the western coast, about 483 kilometres (300 miles) north of Perth. Geraldton is the chief centre of Western Australia's crayfish industry. About 380 boats operating from the port land more than 635 tonnes (14 million pounds) of live crayfish each year. Geraldton is also one of the chief grain-exporting towns in Australia. It has storage and bulk-handling facilities for wheat.

GEYSERS are widespread in the thermal areas of New Zealand (see GEYSER in the main volumes). New Zealand's most famous geyser is the Pohutu geyser at Rotorua. It plays irregularly three or four times a day to a height of 18 to 30 metres (60 to 100 feet) for 30 to 40 minutes.

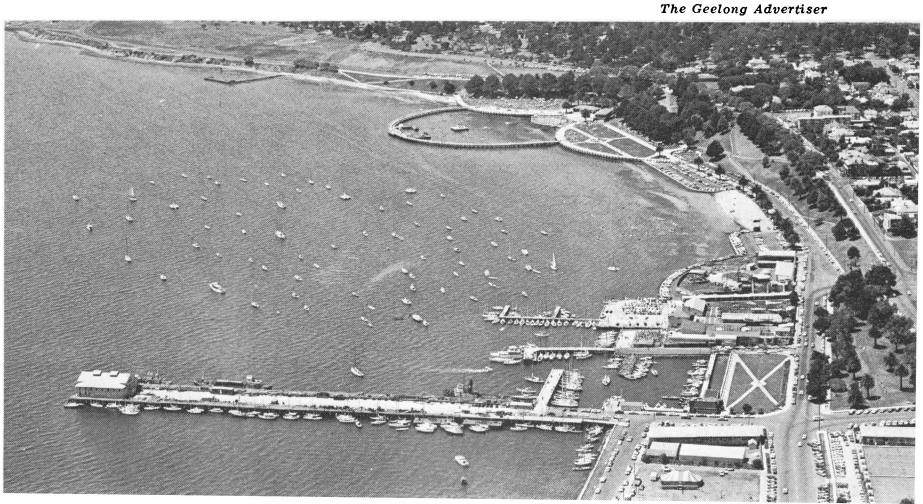
GHOST TOWNS were once prosperous and full of people but are now almost completely deserted. Many ghost towns in Australia were once gold-mining towns that reached the peak of their development between 1850 and 1870. A few were silver-mining or agricultural centres. Ghost towns include Hill End and Pipeclay, in New South Wales; Cooktown and Port Douglas, in Queensland; Innaminka and Waukaringa, in South Australia; Port Arthur, in Tasmania; Clunes, in Victoria; and Halls Creek, in Western Australia.

GIBLIN, LYNDHURST FALKINER (1872-1951), an Australian economist, often advised the federal government on economic affairs. His influence was strongest during World War II, when he was chairman of an advisory committee on federal financial policy. Giblin was born at Hobart, in Tasmania. From 1929 to 1940, he was professor of economics at Melbourne University. His father, William Robert Giblin, was premier of Tasmania from 1878 to 1884.

GIBSON, ALEXANDER BOYCE (1900-), was professor of philosophy at the University of Melbourne from 1935 to 1966. From 1950 to 1952, he was chairman of the professorial board. Gibson was born in London. He was educated at Melbourne and Oxford Universities.

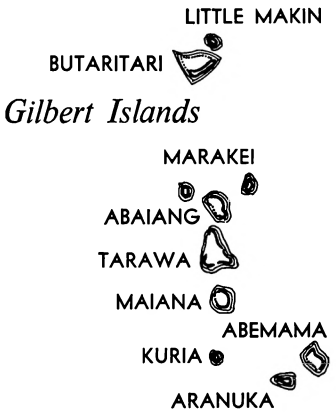
GIBSON DESERT forms part of the plateau of Western Australia. It lies between Lake Disappointment and Lake Macdonald along the Tropic of Capricorn. It is an area of mainly rock and stone.

The Geelong Advertiser

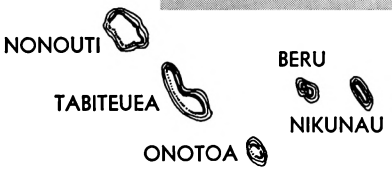


The Port of Geelong, on Corio Bay, is one of the busiest ports in Australia. In the mid-1970s, Geelong was one of the cities chosen for accelerated growth.

Gilbert and Ellice Islands

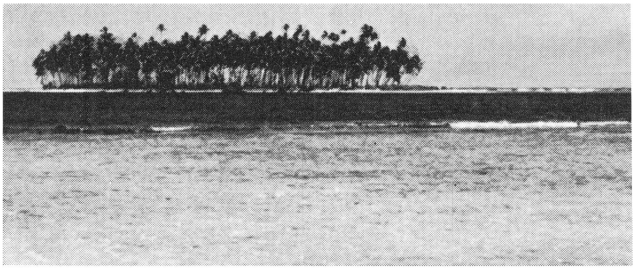


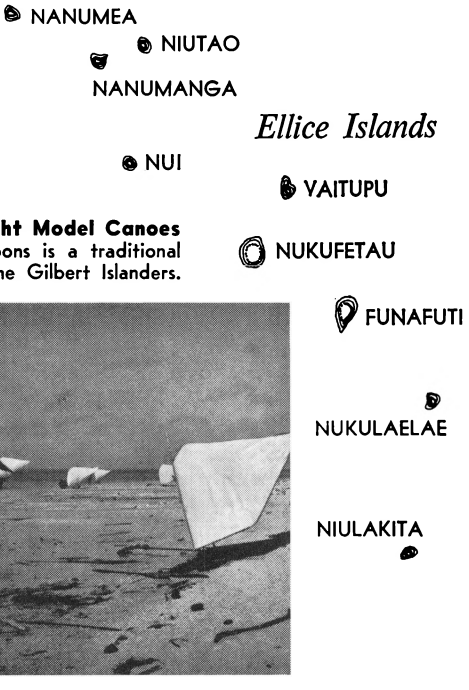
Traditional Thatched Huts nestle among tropical trees for shade along coral beaches.



Most of the Islands are coral atolls—small, palm-covered islets ringing calm lagoons.

Nancy Phelan





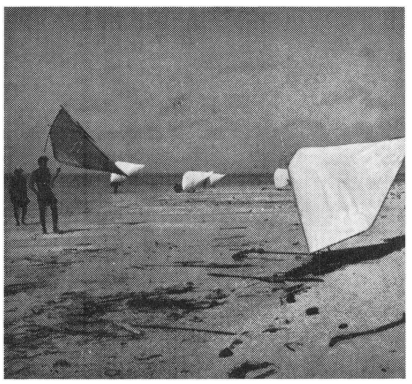
GILBERT AND ELLICE ISLANDS lie north and south of the Equator in the mid-Pacific area. Britain administers the group, together with Ocean Island, to the west, and the Line Islands, to the east, as the Gilbert and Ellice Islands colony. The Gilbert Islands consist of 16 separate atolls. The Ellice Islands consist of nine atolls. Together, they have a total population of about 62,000 people.

The Land. Nearly all the islands in the two groups are flat atolls, rising to only about 4 metres (12 feet) above sea level. In general, the atolls are thickly wooded with coconut palms. The islands that are not atolls are virtually solid masses of limestone. The sizes of the atolls vary considerably throughout the two groups. For example, Tabiteuea, the biggest atoll, is about 80 kilometres (50 miles) long, while Niulakita, the smallest, is only about 1·6 kilometres (1 mile) long. The combined land area of the colony as a whole is 959 square kilometres (369 square miles).

The climate over the region is warm, with low humidity. Cyclones are rare. Temperatures remain fairly uniform throughout the year. The season between January and May is slightly cooler than the rest of the year. There is a marked difference in rainfall from island to island and from year to year. Near the Equator, the atolls have an average of about 1016 millimetres (40 inches) of rain a year. But in the far north and far south of the group, the rainfall averages about 2540 millimetres (100 inches) a year. Most of the rain falls between December and February.

The People and Their Work. The people who live in the Gilbert Islands are primarily Micronesian. But many experts believe that they have mixed with the Polynesian peoples of Samoa, to the south. Anthropologists consider that the Gilbert Islanders form a link between Micronesian and Polynesian peoples. The people of the Ellice Islands are Poly-

Sailing Light Model Canoes on the lagoons is a traditional hobby of the Gilbert Islanders.



nesians. They are tall, like the Gilbert Islanders, but have lighter skins. Most of the Europeans in the colony work in administration or church missions.

Tarawa Island is the administrative and commercial centre of the colony. The economy of the colony is based mainly on rich phosphate deposits, and on copra production from the many coconut plantations. The local people control their own plantations.

History. The Spanish navigator Pedro de Alvarado probably sighted some of the Gilbert Islands in 1537. Another Spanish navigator, Mendana de Neyra (1541-1595), probably sighted some of the Ellice Islands in 1568. In 1606, the Portuguese navigator Pedro Fernandez de Quiros sighted Butaritari, in the north of the Gilbert Islands.

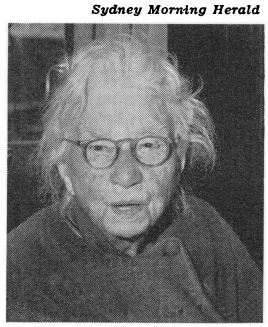
In 1915, Britain annexed the Gilbert and Ellice Islands, at the request of the local people. The two groups became a British colony. The Japanese occupied the colony in World War II. Many of the local people lost their lives during the war.

GILES, ERNEST (1835-1897), an Australian explorer, made four expeditions into the desert lands of South Australia and Western Australia between 1872 and 1876. In 1873, he explored the country to the west of the Musgrave Ranges. In 1875, he set out from Beltana, north of Port Augusta, and crossed the Nullarbor Plain to Perth. He made the return journey to Adelaide in the following year. Giles was born at Bristol, in Britain. He was educated in London, and arrived in Australia in 1850.

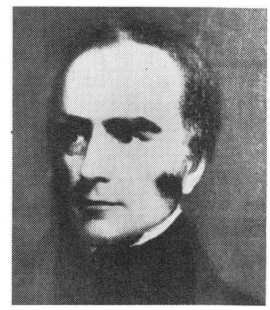
GILL, SAMUEL THOMAS (1818-1880), an early Australian artist, left a record of life on the Victorian gold-fields. He was born in England and trained by his father, Samuel Gill, and by relatively obscure teachers at Plymouth. He landed in South Australia in 1839. He became well-known in Adelaide for his paintings in the district. These paintings include *The Departure of Sturt from Adelaide, August 10th, 1844.* He acted as unpaid official artist for the ill-fated Horrocks expedition. He also published a volume called *Heads of the People.* Gill left Adelaide for the Victorian gold-fields in 1852 and became widely known for his published volumes of lithographs of the colourful life on the gold-fields. His sketches show an unusual ability to assess and portray character. Gill was addicted to strong drink and eventually died in poverty and obscurity.

See also ARTS OF AUSTRALIA (colour picture) in this volume.

Dame Mary Gilmore
Sydney Morning Herald



Sir George Gipps
Mitchell Library



GILMORE, DAME MARY (1865-1962), was an Australian poet. Her poetry reflected her socialist principles, her sense of history, love of country, and hatred of war. Her verse is distinguished by its simple language, freshness of vision, and emotional appeal. Her pleasant and readable verse has assured her a wide reading public. Critics do not place her in the first rank of Australian poets, but they acknowledge her contribution to Australian literature.

Mary Gilmore was a prolific writer. Her most important verse includes: *Marri'd and Other Verses* (1910); *The Passionate Heart* (1918); *The Wild Swan* (1930); *The Rue Tree* (1931); *Under the Wilgas* (1932); *The Disinherited* (1941); *Pro Patria, Australia* (1945); and *Fourteen Men* (1954).

In both her prose and verse, Mary Gilmore was an advocate for the cause of women's rights. She was also one of the earliest Australian poets to recognize the rights of the Aborigines and the necessity of preserving their culture. Her lyrics reflect her close contact with Australian life, and her concern with its problems through the years. Some of her poetry shows an appreciation for the work done in Australia by the Christian faith in spite of the lack of interest shown by a materialist society.

MARY JEAN CAMERON was born near Goulburn, in New South Wales. She worked as a school teacher in her early years, and later she conducted the women's page of the *Worker* for 23 years.

In 1896, she joined the labour leader William Lane in the socialist community he set up in Paraguay (see PARAGUAYAN SETTLEMENTS in the other Australasian volumes). She was married to William Alexander Gilmore in Paraguay in 1897. Her first book was published in 1910. Mary Gilmore was made a Dame Commander of the British Empire in 1937 for her contribution to Australian literature.

GILROY, SIR NORMAN THOMAS CARDINAL (1896-), was Roman Catholic Archbishop of Sydney from 1940 to 1971. In 1946, he became the first Australian to be named a cardinal. In 1969, he became the first high official of the Roman Catholic Church to receive a knighthood. He was born in Sydney. Before entering the priesthood, he worked for the postal department. During World War I, he was present during the landings at Gallipoli. He served in the Naval Wireless Transport Service. He began his studies for the priesthood in 1917 and was ordained a priest in Rome in 1923. He was bishop of Port Augusta from 1934 to 1937.

GIPPS, SIR GEORGE (1791-1847), was governor of New South Wales from 1838 to 1846. He tried to reform the educational system, to introduce a system of licence fees for squatters, and to gain representation for the colonists of the Port Phillip area in the new legislative council. He was an able administrator, but he aroused the hostility of the colonists, who wanted responsible government and more control over their own affairs. While he was governor, explorers opened up much of the continent.

George Gipps was born at Ringwold, in England. He entered the army in 1809. In 1835, he was appointed to inquire into affairs in Canada.

GIPPSLAND is a district in eastern Victoria. It is named after Sir George Gipps, a governor of New South Wales. Gippsland extends from the Great Dividing Range to the coast and from Western Port Bay to the New South Wales border. See VICTORIA (map) in the other Australasian volume.

To the north lie the highlands of the Great Dividing Range. The central lowland is broken by hills near Drouin and Warragul into the West Gippsland Plains, around Western Port Bay, and the Latrobe Valley, which widens eastwards to the Gippsland Lakes. The South Gippsland Highlands are bordered by a narrow coastal plain. Wilsons Promontory is a hilly outcrop tied to the mainland by a sand spit. A long sand bar known as *90 mile beach* borders a series of interconnected lakes into which flow the Latrobe, Avon, Mitchell, and Tambo rivers, with an artificial outlet to the sea at Lakes Entrance. The main lakes are Wellington, Victoria, and King. The drowned valleys of East Gippsland have produced long winding inlets such as Lake Tyers and Mallacoota Inlet.

Farmers in eastern Gippsland raise sheep for wool. Beef cattle are also important. In the low rainfall area near Sale and Maffra, water from the Glenmaggie reservoir on the Macalister River is used to irrigate about 24,200 hectares (60,500 acres). Dairy cattle are especially important in this area. Some farmers also grow potatoes and other vegetables. At Orbost on the Snowy River flats and on the Lower Tambo River, farmers grow maize for fodder and grain. Dairy cattle are also important in this area. Some farmers grow peas and beans.

Dairy farming is important throughout the Latrobe Valley in southern Gippsland. Farmers supply milk to the Melbourne market. Dairy factories at Drouin, Warragul, Trafalgar, Korumburra, Leongatha, and Yarram produce butter, cheese, casein, and milk powder. Farmers in the Kooweerup district grow vegetables in the heavy soils of this drained swamp area. Orchards in the Drouin-Warragul area grow apples and pears. The Highlands is a timber producing area. Most of the towns of the Southern Gippsland area are service centres for the farming districts that surround them.

Brown coal is the base for the towns in the Latrobe Valley. The coal belt extends eastward from Yallourn for about 48 kilometres (30 miles). It is between 8 and 16 kilometres (5 and 10 miles) wide. Geologists estimate that the reserves of brown coal amount to more than 11,020 million tonnes (10,000 million short tons). The State Electricity Commission began operations in the valley in 1924. It mines the coal by open-cut method and uses it to produce electricity. Some of the coal is compressed into blocks called *briquettes*.

There is a paper mill at Maryvale, 10 kilometres (6 miles) from Traralgon. Eucalypt forests are supplemented by the extensive pine forests that have been planted in the area.

Off-shore oil and natural gas fields were discovered on the Gippsland shelf between 1965 and 1968. The fields are linked by pipeline to a gas processing and crude oil separation plant at Longford, near Sale. The Victorian Pipeline Commission takes the treated gas to a distribution terminal at Dandenong near Melbourne.

Eastern Gippsland was first settled by farmers from the Monaro district of New South Wales. Southern Gippsland became a farming area after the development of refrigeration made overseas markets available, and after the construction of the South Gippsland railway in 1891.

GIPPSLAND GIANT EARTHWORMS are extraordinary worms found in the Gippsland area of Victoria. They grow to 4 metres (13 feet) in length and have a diameter of 2 centimetres (almost an inch). They live in burrows near the surface of the ground and can travel in them extremely rapidly. The rapid movement is accompanied by a distinct gurgling sound caused by the worms slipping through a fluid secretion with which their burrows are lubricated. Their egg capsules are also large. They are 51·7 centimetres (20 inches) long, oval, tough, and horny. They lie loose in the soil or among grass roots and are amber brown in colour.

Scientific Classification. Gippsland giant earthworms belong to the family *Crytodrilidae* and the genus *Megascolides*. They are species *M. australis*.

GIRL GUIDES are members of one of the world's largest voluntary youth organizations. They follow an extensive programme of social activity and are encouraged to develop qualities of leadership and community service. Australia, Malaysia, and New Zealand are members of the World Association of Girl Guides and Girl Scouts.

Australia has nearly 130,000 members. The youngest members of the organization are called brownie guides. Guides are 10 to 16 years old and ranger guides are 16 to 20 years old. To overcome the great distances in Australia, guides have organized *lones*—that is, individual girls working alone. One company meets by radio communication. The movement was founded in Britain in 1909. Guiding in Australia began the next year. In Indonesia the movement of boy and girl scouts is called *Gerakan Pramuka*. It has more than 500,000 members. In Malaysia, guiding began in 1916. New Zealand has nearly 60,000 members. New Zealand's movement was launched in 1923.

See also GIRL SCOUTS in the main volumes.

GISBORNE (pop. 30,161) is a city in New Zealand. It lies on a plain at the northern end of Poverty Bay, on the eastern coast of the North Island. It is the centre of a large farming area noted for sheep, fruit, vegetables, meat, and dairy products. The city has a large canning and meat works. It is New Zealand's second largest fishing port.

Gisborne is divided into three suburbs by the Waimata, Taraheru, and Turanganui rivers. It has a port on Poverty Bay and inner harbour wharves on the Turanganui River on the Kaiti Basin. Gisborne has a museum, an art gallery, and botanical gardens. The largest carved Maori meeting-house in New Zealand stands at the foot of Kaiti Hill. A memorial to James Cook stands near the harbour entrance. Cook's first landing in New Zealand was at Gisborne in 1769. Gisborne was named after the British colonial secretary William Gisborne.

GLACIERS, slow-moving rivers of ice, occur in Australasia in the Southern Alps, in the South Island of New Zealand. The island has 12 large glaciers. Tasman glacier, the largest, is 29 kilometres (18 miles) long. The Fox glacier, which is 14 kilometres (9 miles) long, and the Franz Josef glacier, which is 13 kilometres (8 miles) long, are the most spectacular.

In Indonesia, there are some small glaciers still active in the highlands of Irian Jaya on the island of New Guinea.

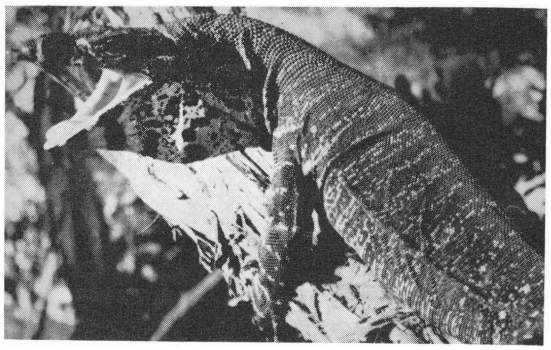
There are no active glaciers on the Australian mainland or in Tasmania. But there is plenty of evidence of glaciation during past ice ages. During the last glacial period, about one-fifth of Tasmania was covered by ice. Most of the ice was contained in a circular ice cap 65 kilometres (40 miles) in diameter. This cap covered the north-western part of the Central Plateau, the Cradle Mountain Plateau and the Du Cane Range. Numerous glaciers moved outwards from this area. Tasmanian glaciers were active in the Mt. Turnbull region of the west coast near Great Lake, on Ben Lomond, and on the King William Range. Less extensive, but still severe, glaciation occurred in the Mt. Field National Park, in the Arthur and Snowy ranges, on Mt. Picton, Mt. Anne, Mt. Bobs, Mt. La Perouse, Federation Peak, Frenchman's Cap, and Adamson Peak. In addition, *periglacial* (frost-induced) processes occurred over most of Tasmania at the time of the glaciation.

On the Australian mainland, glaciation was restricted to a small area in the highest part of the Snowy Mountains near Mt. Kosciusko. Periglacial action was also widespread on the mainland. It probably affected the higher parts of the Great Dividing Range in Victoria and New South Wales.

GLADSTONE (pop. 15,365) is a town on the north-central coast of Queensland. It stands on the harbour of Port Curtis. With the installation of modern bulk-handling equipment, the port of Gladstone has become an important centre for the export of wheat, sorghum, coal, pyrites, and alumina. Most major oil companies have built ocean terminals there. An alumina refinery began operations in 1967 using bauxite from the Weipa deposits at Cape York. The refinery is the largest bauxite refinery in the world, using 2,642,000 tonnes (2,600,000 tons) of bauxite a year and producing 1,295,000 tonnes (1,275,000 tons) of alumina. The refinery has a planned capacity of 2,032,000 tonnes (2,000,000 tons) of alumina. Surrounding areas are devoted to grazing, dairying, and growing crops. The plan of the town was approved by Governor Fitz Roy in 1853.

A Goanna

Eric Worrell



GLASSHOUSE MOUNTAINS rise east of the Blackall Range in south-eastern Queensland. They lie from 56 to 80 kilometres (35 to 50 miles) north of Brisbane. Geologically, they are known as *volcanic plugs.* There are 11 main peaks. Captain James Cook named the mountains in 1770 because their steep cone-shaped outlines reminded him of glasshouses.

GLENBAWN DAM is a part of the Hunter Valley irrigation and flood mitigation scheme in New South Wales. It is situated about 13 kilometres (8 miles) east of Scone, in the hills above the upper Hunter River. It is 74 metres (243 feet) high and can hold 360 million cubic metres (293,000 acre-feet) of water. The dam is constructed of earth. It was completed in 1958.

GOANNAS are what Australians call large lizards that are known in other parts of the world as *monitors* or *monitor lizards.* More than 20 kinds live in Australia. They range in size from pigmy species, about a foot long, to the *perentie,* of central and Western Australia, which grows to more than 8 feet. All species are rather sleek, with powerful limbs and tails and forked tongues. All are harmless to man and are important in the control of pests.

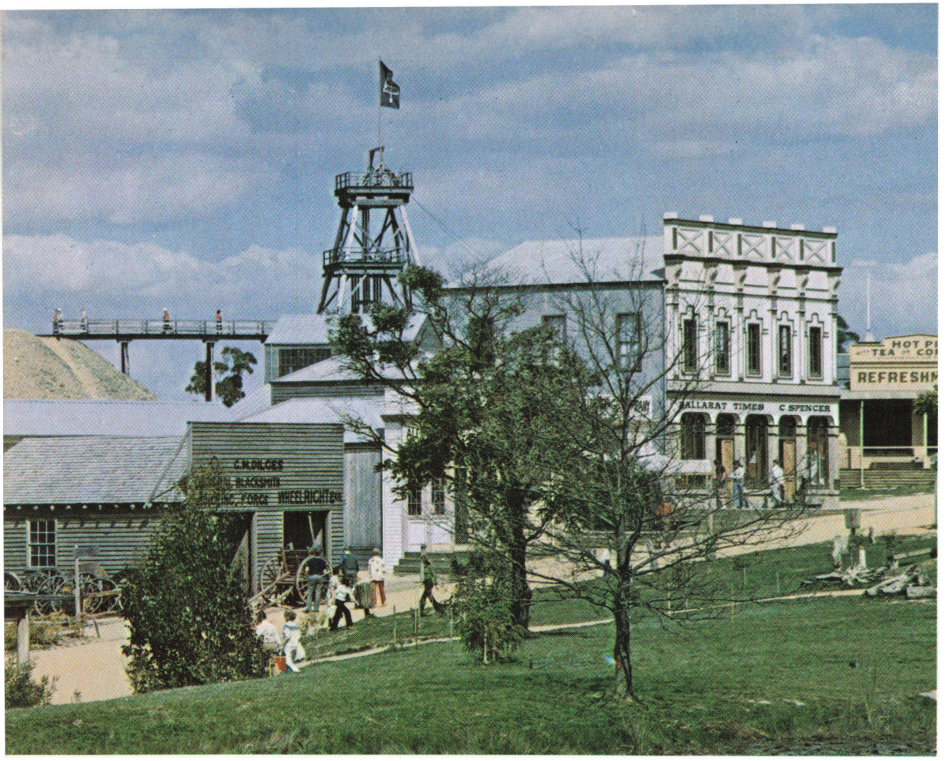
Goannas live in a wide variety of places, from rain forests to deserts. Some kinds are especially adapted to living among rocks, in trees, or in fresh-water streams and lagoons.

All goannas lay eggs. Some species lay their eggs in termite mounds, where the eggs incubate safely until the young hatch. Goannas eat insects, other reptiles, birds, and mammals. Many of the larger kinds also feed on dead animals.

Scientific Classification. Goannas belong to the family *Varanidae* and the genus *Varanus.*

GODLEY, JOHN ROBERT (1814-1861), helped to found the settlement of Canterbury, in New Zealand. In 1847, he met the British colonist Edward Gibbon Wakefield. Together, they planned to establish an Anglican settlement and formed the Canterbury Association. In 1849, Godley was appointed chief officer of the settlement. He landed in New Zealand in 1850 to prepare for the arrival of the settlers. The settlement thrived and, in 1852, he returned to Britain. Godley was born in Ireland and was educated at Oxford University.

GOLD COAST (pop. 68,974) is an area of tourist resorts on the eastern coast of Australia. It stretches from Southport, in Queensland, to the border of New South Wales. It includes such resorts as Surfers Paradise, Broadbeach, Burleigh Heads, Palm Beach, Miami, and Coolangatta. The Gold Coast has warm sunshine and long beaches with excellent swimming, surfing, and water ski-ing facilities. Other tourist attractions include bowls carnivals and a bird sanctuary where lorikeets alight in thousands to be fed by tourists. During the tourist season, the population of the Gold Coast is more than 140,000.



A Gold-Mining Town has been reconstructed at Sovereign Hill in Ballarat. Main Street is as it was at the height of the gold rush. Visitors can see how the miners lived and can actually pan for gold themselves.

Sovereign Hill

GOLD-MINING was one of the most important industries in Australia and New Zealand in the second half of the 1800s. It is less important today, but still contributes to the economies of both countries. Australia is the fifth largest producer of gold in the world, even though its coal, lead, zinc, and copper mines are more important than its gold-mines. Australia produces about 23,327·610 kilograms (750,000 troy ounces) of gold a year, valued at about $A 23 million. New Zealand's known gold deposits are almost exhausted. New Zealand produces only about 435·449 kilograms (10,000 troy ounces) a year, valued at about $NZ 760,000. No large amounts of gold are mined in Indonesia or Malaysia.

The Gold-Mining Industry

About half of the gold produced in Australia comes from Western Australia. Almost all of the gold produced in the state comes from the eastern gold-field, a curving belt extending northwards through Norseman, Burbanks, Coolgardie, and Boulder. The richest deposits occur in the Golden Mile at Boulder, near Kalgoorlie (see GOLDEN MILE in this volume). Most of the rest of the state's gold comes from Murchison gold-fields.

The Northern Territory ranks second to Western Australia as a producer of gold. Most of the territory's gold comes from the Tennant Creek mines. Queensland is the third most important producer. About three-quarters of its gold comes from copper concentrate produced at Mt. Morgan. Gold is also mined at Cracow, in eastern Queensland.

Most of Australia's gold lies in large, low-grade deposits. Miners working extremely narrow veins have to remove much of the *mullock* (surrounding rock) to reach the ore. Only a small amount is taken from alluvial deposits. In New Zealand, one dredge operates in Westland.

History

Discovery. The first officially recorded discovery of gold in Australia was made by a surveyor, James McBrain (or McBrien). He found gold near Bathurst, New South Wales, in February, 1823. But historians have good reason to believe that many other men had discovered gold earlier, but kept their discoveries secret. For example, in 1816, a convict in the same area was punished for possession of gold. Convicts and ex-convicts made up a high proportion of the population in that period. It is unlikely that such people would report gold discoveries. Secrecy was considered an essential precaution for all initial discoveries of gold-fields.

Three other factors contributed to the delay in opening up gold-fields in Australia. First, the area lacked transport and roads. Second, little was known of gold-mining methods. Third, there was the fact that, in English law, all deposits of gold and silver belonged to the Crown. In addition, local businessmen and graziers feared that workers would give up their jobs and join the gold rushes. All these reasons caused the authorities to hush up other early gold discoveriees in New South Wales. Such finds included those by Count Strzelecki at Hartley in 1839, W. B. Clarke at Hartley in 1841, and McGregor at Wellington in 1848.

But by 1851 the newly-formed and developing governments of the two main colonies, New South Wales and Victoria, felt a vital need for gold. Without additional sources of wealth and an increase in population, the economies of the two colonies could not grow. The two colonies also needed gold with

which to pay for growing trade with the rest of the world. The earlier opposition broke down and rewards were offered for the discovery of payable gold-fields.

Edward Hammond Hargraves received the credit and reward for the first such discovery. He was, in fact, away in Sydney when John Lister and William Tom panned the first gold. The two men made the discovery at the meeting of Lewis Ponds and Summerhill Creeks, at Ophir, New South Wales, on April 7, 1851. In granting the reward, the government took into consideration the fact that Hargraves had led the three-man team and that he had given Lister and Tom the benefit of his gold-mining experience in California.

Ten weeks later, on June 29, 1851, a Californian, James William Esmond, struck gold. He made his discovery at Clunes, near Ballarat, in Victoria. Others had found gold in Victoria before him, but none had had the necessary mining knowledge to extract it. Three months later, Esmond was credited with the first big find, 18·75 kilograms (600 ounces) in two days at Ballarat.

James Grant discovered payable gold at Fingal, in Tasmania, in 1852. A much richer mine was discovered at Beaconsfield, in Tasmania, in 1871. A gold-field opened up at Echunga, south-east of Adelaide, in South Australia, in 1852, but it was never of much significance.

In 1852, the first official report of a gold discovery in Queensland was made at Bingera. The second was made in 1858, at Canoona. The first big payable field was found in the far north on the Palmer River by R. Hann, a cattleman, on Nov. 12, 1872. But Hann continued in his safer business of droving and left the development of this enormously rich field to James Venture Mulligan. In August, 1865, F. H. Litchfield mined the first gold in the Northern Territory, on the Finniss River. In 1892, at Coolgardie in Western Australia, Arthur Bayley found, in his own words: "Nuggets (of gold) laying about like gibber stones".

Gold was first discovered in payable quantities in New Zealand in 1852 by Charles Ring at Coromandel Peninsula in the North Island. Much bigger strikes were made in the same area 11 years later. Smaller finds were made at Nelson and Otago in the South Island during the 1850s. But the bigger strikes came in the 1860s when most of Victorian alluvial fields had petered out. Gabriel Read made the first major discovery at Tuapeka, Otago province, in the South Island in May, 1861. Diggers poured into the area, in numbers as high as 2,000 a week. Most of them came from Victoria.

Big Nuggets. The biggest nugget officially confirmed was found by Richard Oates and John Deason at Moliagul, in Victoria, on Feb. 5, 1869. It was known as *The Welcome Stranger* and yielded 69·920 kilograms (2,248 ounces) of pure gold. A cast replica of this nugget can be seen in the Mines Department in Melbourne. Eleven years earlier, at Ballarat, *The Welcome* nugget had been unearthed, yielding 68·272 kilograms (2,195 ounces) of pure gold.

The third largest nugget was found by a group of Chinese at Dunolly, in Victoria, on Jan. 5, 1871. *The Precious,* as it was known, returned 50·418 kilograms (1,621 ounces) of pure gold. Victoria produced 11 of the nuggets found in Australia that were officially confirmed as weighing more than 31·25 kilograms (1,000 ounces).

In 1872, the world's largest recorded unit of gold-bearing material was dug up by Beyer and Holterman at Hill End in New South Wales. This piece of mixed metal was 1,448 millimetres (57 inches) high and 381 millimetres (15 inches) wide. It weighed 235·142 kilograms (7,560 ounces). When refined, it returned about 93·310 kilograms (3,000 ounces) of pure gold. But it could not be confirmed as a true nugget because of its mixture.

How Gold Was Mined. All the earliest discoveries of gold in Australia were *alluvial*—that is, the metal lay in flakes or grains on or near the surface where it could be worked by hand tools. Once a field was discovered, miners would stake claims to pieces of land to work on. These claims would vary in size according to location. For example, claims ranged from 2·44 metres (8 feet) square in Victoria to 15 by 30 metres (50 by 100 feet) in Western Australia.

Where gold was present in creek or river beds, miners could ladle out the earth with a pan and wash it until only the heavier gold remained. A similar, better method was to use a rocking cradle to separate the gold from the waste. In areas where water was scarce, such as Western Australia, alluvial gold was mined by *dry blowing*—that is, the gold was separated from the sand by dropping the material from a height and allowing the wind to blow the lighter parts away. *Puddling* was an extension of the panning method. Huge tubs or vats, often worked by horses, were used to wash gold-bearing soil.

Once the top soil deposits were exhausted, most miners sank *shafts* (tunnels) into the ground. Here much more skill was required to follow the *line of the lode*—that is, the vein of gold. It lies in narrow veins in quartz. Most miners used the pick, shovel, and pan. Many men also used the *dolly*—a strong iron pot in which quartz could be finely crushed to make the process of separating the gold easier.

Later, companies introduced dredges to scoop up the gold-bearing deposits. Another later method was the use of hydraulic pressure hoses to wash the gold out. Most of the gold extracted from quartz is, and always has been, obtained by ore-crushing machinery, with the aid of chemicals.

Life on the Gold-Fields. Living and travelling conditions on all Australian gold-fields during the 1800s were extremely rugged. Often there were no buildings for shelter, and food supplies could not always keep up with the rapid rise in population. The rushes began in Victoria and New South Wales, then spread up to Queensland, over to the Northern Territory, and down to Western Australia. As men moved on to the newer rushes, they encountered worse conditions as they moved farther from civilization.

They balanced the terrible conditions against the promise of sudden wealth. Those who were hardy persisted. But many diggers, after a brief try on the

fields, returned to their former homes and work.

Conditions varied according to a miner's experience and money. Life was comparatively easy for miners who had come to Victoria from the California gold rush, and who had knowledge, equipment, and money. Most of the richest gold-fields lay within 112 to 160 kilometres (70 to 100 miles) of Melbourne. Miners with money could buy or hire transport and be winning gold two or three days after arrival. But, as in all gold rushes, the vast majority were poor.

The typical digger was a man who had deserted his sailing ship at Port Melbourne. He had heard the wild talk of ex-miners all the way from San Francisco. He was totally obsessed with gold fever. The scene around the wharves was one of confusion. Bullock teams and wagons, horses and drays churned up sticky mud. Merchants shouted out the prices of their mining equipment and stores. It was mid-winter in 1852, when many diggers were setting out along the muddy Mount Alexander road. The typical digger was dressed in heavy boots, leggings, moleskin trousers, flannel shirt, sweater, and sailor's coat and cap. On his back he carried two rough bush blankets wrapped in a piece of tarpaulin. In his carpet bag he had some food, spare clothing, and chamois-skin gold bags.

But the people on the track to Mount Alexander were dressed and equipped in many ways. Former bank managers and public servants hurried along beside chimney sweeps and lamplighters. There were women and children. There were Chinese, Germans, and a dozen other nationalities, all in their national clothing. Some had horse-drawn drays or buggies. Some had packhorses. Some pushed loaded wheel-barrows, carts, or even prams. Some had only what they carried on their backs.

There was no distinct road to the diggings simply because there had been little time, labour, or money for public works. The general route was cut up into countless tracks by carts and drays. Some found it bewildering, but all tracks finally led to the gold-fields at Mount Alexander.

Prices of the poor-quality food and drink increased daily. A meal cost 40 cents. Cheese cost 45 cents a pound, and bread, 50 cents a loaf. Ale cost 15 cents a glass. Rum or brandy was 20 cents a nip and wine $A 2.50 a bottle.

There was talk about unrest on the gold-fields. Miners were complaining about high licence fees for digging gold. The licence cost $A 3.00, or half an ounce of gold, per month. The miners were fined $A 10.00 for the first offence of not having a licence, $A 30.00 for the second offence, and $A 60.00 for the third offence. Those unable to pay had to work out the fine building roads.

It took the average digger three days and two bitterly cold nights to reach Mount Alexander, which is now Castlemaine. At night he had to sleep out in the open. Most inexperienced new arrivals had no idea what to do when they reached the diggings. They soon learned that it was wise to form a party to work a claim. Two were enough for work on the surface, but if a shaft had to be sunk, three or four were necessary. One dug; one hauled up earth; one cradled or puddled; and one relieved and cooked.

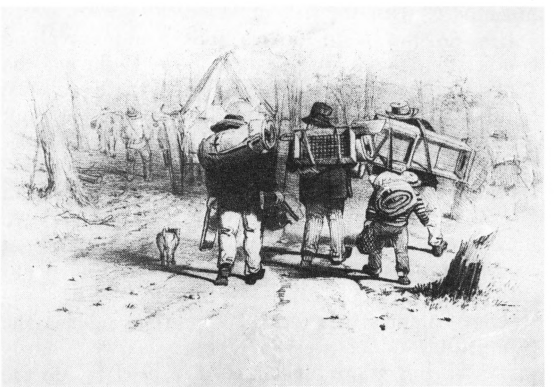
Impatient for the quicker rewards on the surface, most diggers decided on surface mining. They bought a couple of picks, an assortment of pans, a tent, and some food. They found themselves in the midst of chaotic disorder. Claims were packed close together over an area of about 16 square kilometres (6 square miles). Miners were setting up so quickly that diggers had to run to stake out a claim. The size of a site hardly allowed room to erect a tent and work the claim.

The food was bad. Most diggers found they could not stomach the flyblown meat sold by the butchers, and lived on salted beef, potatoes, onions, damper, and tinned fish.

The diggers at Mount Alexander were on the richest field in Victoria. But most of them struck *duffers* (worthless claims). Some diggers averaged 453·6 grams (16 ounces) of gold a day. But most of them barely averaged 28·3 grams (1 ounce) a day.

Three out of every four prospectors during the Australian gold rushes had little or no success.

Prospectors had to walk from Melbourne to the gold-fields at Bendigo. They carried all of their possessions on their backs.
Mitchell Library



Rocking a Cradle, miners separated the gold from the earth. S. T. Gill sketched these men at work at Forest Creek in 1857.
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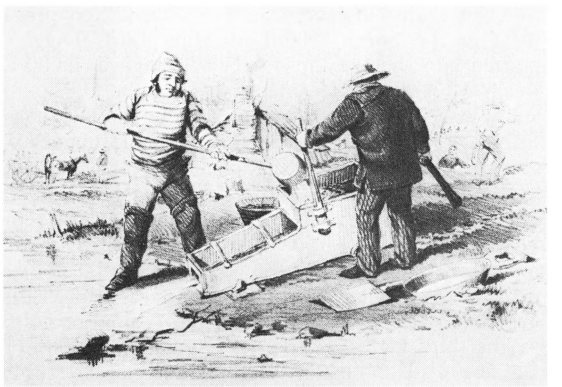

GOLD MINING IN AUSTRALIA AND NEW ZEALAND

Present-day mining site

Closed mining site

0 750 Kilometres
0 500 Miles

WORLD BOOK map

Most of them eventually returned to Melbourne. There was plenty of free transport on the bullock wagons going back to Melbourne for stores. Back in Melbourne, there were plenty of jobs available at double and treble ordinary wages. Many felt they would have been wiser had they stayed there in the first place.

Gold-Fields Society. The Australian gold-fields in the 1800s were populated by diggers from all parts of the world. The prospectors came from every social class and from every type of job. They all came with a single thought in mind, to get rich quick and return home.

The forces of law and order always lagged behind the wave of crime. Criminals, when caught, might be chased off the fields, or tarred and feathered, or chained to a tree until the police came. In the initial stages, social services on a new gold-field simply did not exist.

Conditions became more stable as the diggers sank shafts and the traders, and then the police, appeared. But at Ballarat and adjoining fields, the police made things worse by continually demanding to see the miners' licences and by persecuting them in other ways. The police apparently hoped to force the diggers back into their ordinary jobs. Within three years, the average earnings of the miners had dropped to subsistence level, and they could not afford to pay the high fees for licences. This condition led to the public burning of licences, and fi-

Weighing and Selling Gold involved fairly hard bargaining in the gold towns.
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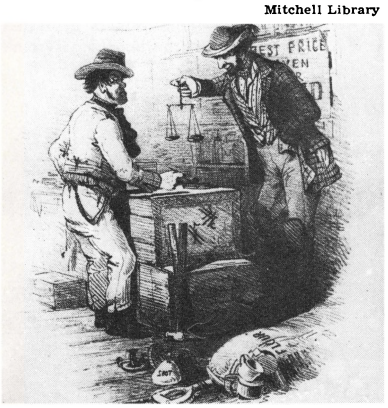

Protecting a Gold Shipment was the work of armed police. S. T. Gill sketched this detachment as they escorted a shipment from Mount Alexander.
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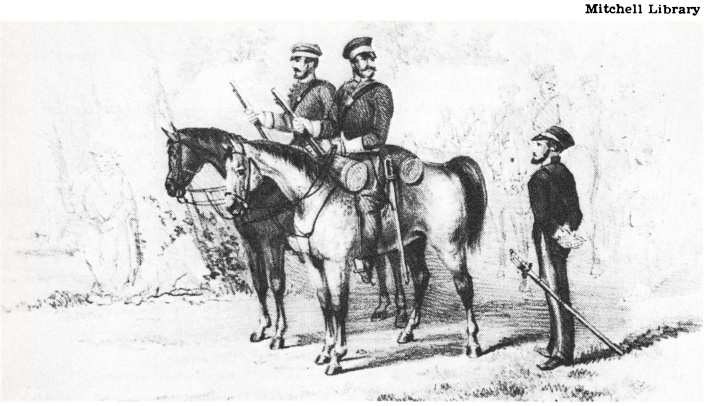

nally, to the battle at Eureka Stockade, Dec. 3, 1854. See EUREKA STOCKADE in this volume.

The Chinese. China was probably the first country to value goods in relation to gold. Gold was in general use there at least 3,000 years ago.

Chinese who left their country to go to overseas gold-fields came equipped with a tremendous advantage in experience. Many Chinese miners migrated to Australia and New Zealand after the 1849 California gold rush. The average Chinese could live on less, withstand worse conditions, and remain patient longer than diggers of other nationalities. Chinese miners would rework abandoned claims, tailings, and mullock heaps for mere specks. They could work all day waist deep in water, bringing up gravel from the creek beds. The Chinese were extremely secretive about their successes. They refused to learn English and kept to themselves.

The Chinese formed a majority on most of the well-established fields. They were extremely law-abiding, but the European miners grew increasingly hostile towards them. They accused them of heathenism, opium smoking, and even wasting water. The Chinese miners remained passive as hostility rose against them. This hostility exploded in the anti-Chinese riots at Buckland Valley in Victoria in 1857, where 22 Chinese were killed. At Lambing Flat in New South Wales in 1861, two more Chinese were killed in further riots.

The various colonial governments passed laws against the Chinese, but usually in vain. The South Australian government issued bans and imposed poll taxes on Chinese. These acts did not stop Darwin from becoming virtually a Chinese town. Such legislation eventually led to the White Australia Policy. See WHITE AUSTRALIA POLICY in the other Australasian volume.

Effect of the Gold Rushes. The gold rushes caused the population to increase fourfold in just over 10 years. Attitudes that grew up on the gold fields laid the basis for many of the democratic political traditions of Australia and New Zealand. Economically, the enormous wealth won from the gold-fields provided the foundation for the rapid growth of industries, communication, and cities.

This growth in turn speeded up the march to Australian nationhood.

Aids to Learning

Related Articles. See GOLD in the main volumes. See also the following articles in the Australasian volumes:

Golden Mile	History of New Zealand
Hargraves, Edward	Kerr's Hundredweight
History of Australia	Welcome Stranger

Outline of this article is as follows:

I. The Gold-Mining Industry
II. History
A. Discovery
B. Big Nuggets
C. How Gold was Mined
D. Life on the Gold-Fields
E. Gold-Fields Society
F. The Chinese
G. Effects of the Gold Rushes

Books to Read about this topic include:

Gill, S. T. *Goldfields Illustrated*. Landsdowne, 1972.
Jennings, M. J. *Australian Goldfields*. Hill of Content, 1972.

GOLDEN MILE is a rich gold-mining area near Kalgoorlie, in Western Australia. The most valuable deposits are near Boulder, about 5 kilometres (3 miles) from Kalgoorlie. The Golden Mile deposits were discovered in 1893. See also KALGOORLIE in this volume.

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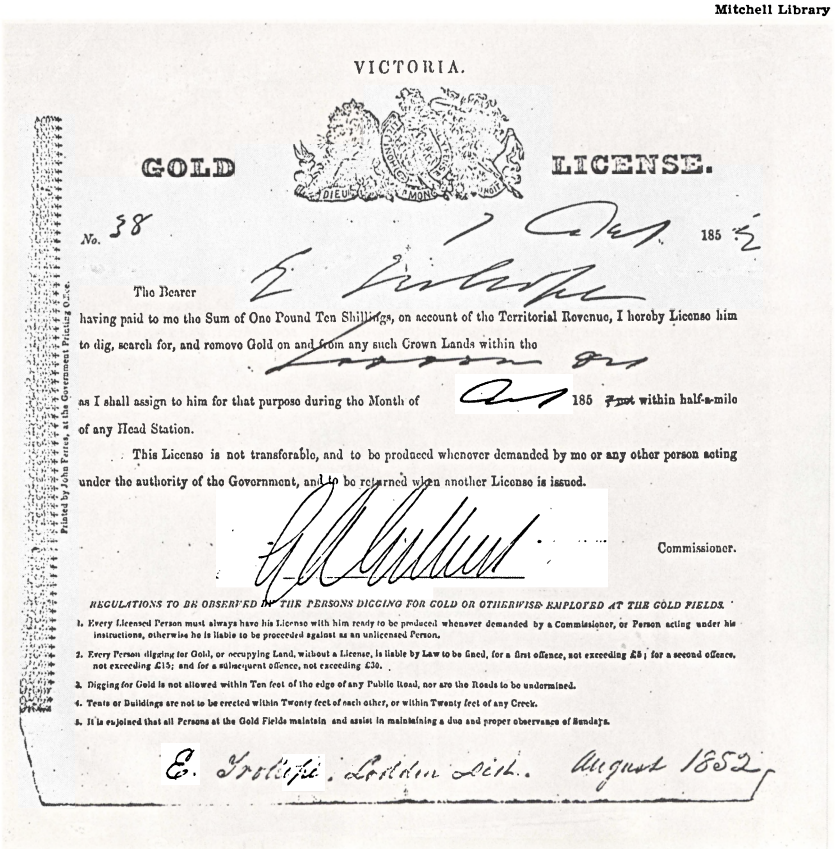

VICTORIA.

GOLD LICENSE.

No. 38 1 Aug 185 2

The Bearer E. Trollope

having paid to me the Sum of One Pound Ten Shillings, on account of the Territorial Revenue, I hereby License him to dig, search for, and remove Gold on and from any such Crown Lands within the Loddon Div

as I shall assign to him for that purpose during the Month of Aug 185 ~~2~~ within half-a-mile of any Head Station.

This License is not transferable, and to be produced whenever demanded by me or any other person acting under the authority of the Government, and to be returned when another License is issued.

G. Cornish Commissioner.

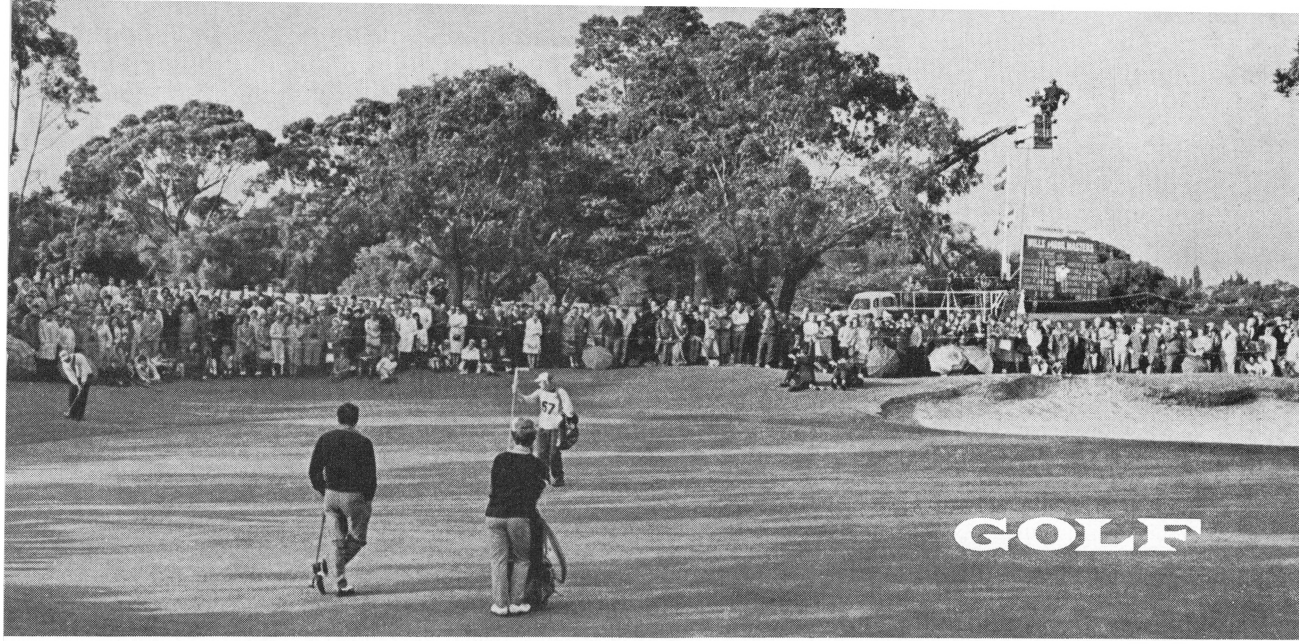
REGULATIONS TO BE OBSERVED BY THE PERSONS DIGGING FOR GOLD OR OTHERWISE EMPLOYED AT THE GOLD FIELDS.

1. Every Licensed Person must always have his License with him ready to be produced whenever demanded by a Commissioner, or Person acting under his instructions, otherwise he is liable to be proceeded against as an unlicensed Person.
2. Every Person digging for Gold, or occupying Land, without a License, is liable by Law to be fined, for a first offence, not exceeding £5; for a second offence, not exceeding £15; and for a subsequent offence, not exceeding £30.
3. Digging for Gold is not allowed within Ten feet of the edge of any Public Road, nor are the Roads to be undermined.
4. Tents or Buildings are not to be erected within Twenty feet of each other, or within Twenty feet of any Creek.
5. It is enjoined that all Persons at the Gold Fields maintain and assist in maintaining a due and proper observance of Sundays.

E. Trollope. Loddon Dist. August 1852

Printed by John Ferres, at the Government Printing Office.

Gold Licences cost £1.10s.0d. a month in 1852, a considerable amount at the time. Police constantly demanded to see the licences and imposed heavy fines on miners who could not produce them. Miners protested against the licencing system.



Brian McArdle

Leading Golfers from many countries play for valuable prizes in Australia's main tournaments. Thousands of spectators attend these events to see such famous players as Jack Nicklaus, *left,* and Peter Thomson, *centre left.*

GOLF is one of the most popular games for people of all ages in Australia and New Zealand. Australia has more than 300,000 golfers and about 1,300 courses. In New South Wales alone, 96,000 golfers are members of clubs that are affiliated to the state associations, and about 50,000 play on public courses. Victoria has 70,000 affiliated players and an estimated 35,000 playing on public courses. For the rules of golf, see GOLF in the main volumes.

In Indonesia, Malaysia, and Singapore, golf is a game played mainly by wealthy people. Most of the golfers in Indonesia are diplomats or army officers. Indonesia has only six golf clubs. Malaysia has 10,000 golfers, 25 clubs, and several fine courses. Golf clubs play an important part in the social life of Malaysia, bringing together the various peoples of the country. Many Americans and Australians are members of clubs in Singapore.

New Zealand has about 60,000 affiliated golfers and 350 affiliated clubs. In addition, many people play on public courses.

Young Players. In Australia and New Zealand, people are encouraged to take up golf at an early age. State associations and clubs run coaching classes, and many professionals give free lessons. Golfing camps are held in Australia, at which the leading professionals demonstrate how to play shots and how juniors should conduct themselves on a golf course. Junior teams travel to country centres and from state to state for interstate matches. Juniors have their own rooms and sections in clubs.

Golf Courses. Australia has some of the finest courses in the world. Melbourne has a series of well-designed courses on its famous sand-belt area. The Royal Melbourne club has two fine layouts incorporating the best features of golf-course design. The Kingston Heath, Metropolitan, and Victoria clubs have beautiful layouts in natural settings of trees, slopes, and hills. Sydney has four magnificent courses—the Australian, the Lakes, the New South Wales, and the Royal Sydney.

The main clubs in Malaysia are at Kuala Lumpur, Ipoh, Penang, and Seremban. The main club in Singapore is the Singapore Island club, formed from a merger of the Royal Singapore and the Island clubs. It has 4,000 golfers and three courses. A fourth course has been planned.

Many New Zealand courses are in beautiful surroundings. The main courses are at Paraparaumu, near Otaki; Heretaunga, near Upper Hutt; Titirangi and Middlemore, both in Auckland; and Shirley, in Christchurch.

Competitions. The national championships—open, amateur, and professional—are the main golfing events in Australia and New Zealand. Leading golfers from overseas play in the open championships. In recent years, various business firms have attracted the world's finest golfers to play in tournaments by offering generous "appearance-money" and valuable prizes. Malaysia and Indonesia hold national championships each year.

Teams from Australia and New Zealand take part in international golf matches. In 1956 and 1966, Australian teams won the Eisenhower Trophy, which is the leading trophy competed for by amateur teams. Australian teams have twice won the Canada Cup, which is competed for by both professional and amateur players. New Zealanders have also done well in both these international competitions. Australian and New Zealand teams compete against each other for the Sloan Morpeth Trophy for men and the Tasman Cup for women.

Famous Golfers. Australia has produced many outstanding players of world standard. Joe Kirkwood (1898-), was the first great Australian professional. He was Australian and New Zealand open and professional champion in 1920, and won the Canadian open in 1933. He was a master of

trick shots. Kirkwood encouraged the American golfers Walter Hagen and Gene Sarazen to visit Australia. The personality and skill of these golfers fired the imagination of Norman von Nida. Von Nida (1914-) won the Australian open three times and was runner-up six times. He was Australian professional champion four times and also won many British tournaments. He encouraged Peter Thomson, Bruce Devlin, and Bruce Crampton in their efforts to reach the top as professional golfers.

Peter Thomson (1929-) had, by the mid-1960s, won an Australian open, eight New Zealand opens, five British opens, and many other tournaments overseas. He and Kel Nagle twice won the Canada Cup for Australia. Kel Nagle (1920-) won two Australian opens and a British open, and was runner-up in the 1965 United States open. Bruce Crampton (1935-) won the Australian open at the age of 20, and had many tournament wins on the American professional circuit. Bruce Devlin (1937-) was Australian amateur champion in 1959, won the Australian open in 1960, and was successful in America and Europe.

Jim Ferrier (1915-), who became an American citizen, won two Australian opens and four Australian amateurs. He won the American professional title in 1947 and the Canadian open twice. Ossie Pickworth (1918-1969) won four Australian opens, three Australian professional championships, and the Irish open.

New Zealand's best-known player is Bob Charles (1936-), the only left-hander to win the British open. He also won the New Zealand open and tournaments in the United States. Andy Shaw and Alex Murray were the outstanding golfers in New Zealand before World War II. Shaw won the New Zealand open seven times.

Two amateurs had outstanding success in Malaya. Dammy Brown won five Malayan championships, as did E. P. Kyle. Kyle also played for Scotland.

Controlling Bodies of golf are: in Australia, the Australian Golf Union and Australian Ladies Golf Union; in Malaysia, the Malayan Golf Union; and in New Zealand, the New Zealand Golf Association and the New Zealand Ladies Golf Union. The various state and provincial associations send delegates to the national bodies, which arrange national championships and select international teams.

History. A party of men from Fife, in Scotland, played the first game of golf in Australia in 1847. They formed a club and laid out a course in a Melbourne park later known as Flagstaff Gardens. But the club went out of existence in 1850.

Scots introduced the game into South Australia in 1869, when the governor of the colony, Sir James Ferguson, helped to start a club. The course was on the eastern parklands to the south-east of the present-day Victoria Park racecourse. Unfortunately, cows grazed on the parklands, and the club had to be disbanded in 1875. In 1890, the North Adelaide club was formed.

In 1882, New South Wales formed its first club—the Australian—in Sydney. Its original course was near Centennial and Moore parks. In 1895, the club acquired a new course in Queen's Park. Later, it moved to Botany Bay and then to its present course at Kensington. The Sydney club, now called the Royal Sydney, was formed in 1893.

The Royal Melbourne club was formed in 1891. One of its founders was J. M. Bruce, whose son Stanley became prime minister of Australia and, as Lord Bruce, captain of the Royal and Ancient club at St. Andrews, Scotland. See BRUCE OF MELBOURNE, LORD, in this volume.

Queensland's first golfers were the Scottish-born Ivory brothers, who in 1880 began playing golf on their cattle station. The first golf club in Queensland was the North Queensland club formed in 1893. The name was changed to Townsville in 1924. The Brisbane club was formed in 1896.

Western Australia's first golf course was laid out in 1895, on an island in the Swan River. The Newlands club at Hobart was the first golf club in Tasmania. It was formed in 1896. Eight years later, Tasmania joined the Australian Golf Union, which was formed in 1898.

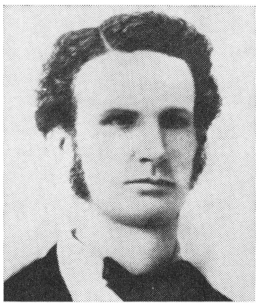
Related Articles in the Australasian volumes include:
Devlin, Bruce
Nagle, Kel
Thomson, Peter
Von Nida, Norman

GOOLAGONG, EVONNE (1951-), a part-Aboriginal tennis player, became the second Australian to win a Wimbledon women's singles title when she defeated Margaret Court in the final in 1971. Evonne was born at Griffith, in New South Wales. She first showed great potential as a tennis player at the age of 15. Her coach, Vic Edwards, helped her to develop this potential and in 1970 she won some titles in Europe on her first overseas trip. She toured the United States in 1973.

GOONYELLA is a rich open-cut coalfield in the Bowen basin in central Queensland. Experts estimate its reserves at 2·5 million tonnes (2·5 million tons). Coal is taken by rail to the port of Hay Point. A joint exploration company leased an area of more than 2,770 square kilometres (1,070 square miles) in 1965. Blackwater mine near Goonyella opened in 1967. Mining began at Goonyella itself in 1971 and the nearby mine at Peak Downs was established in 1972.

GORDON, ADAM LINDSAY (1833-1870), one of the best-known Australian poets, is often referred to as "the father of the bush ballad". During the 1800s, while traditional forms of poetry persisted, popular writers began to develop a local form of the ballad. Gordon led the way with *Bush Ballads and Galloping Rhymes,* published the day before his death. Gordon led a vigorous outdoor life. He became known for his great daring in horse-riding and boxing. The swift-moving rhythms of his ballads reflect his love of life in the open.

Gordon was born in the Azores, the son of an ex-cavalry officer. He settled in South Australia in 1853. He became a mounted police officer and, later, a wandering horse-breaker. He inherited money from his mother and settled near Mount Gambier. He began to gain a reputation as a writer of sporting verse. He became a member of the South Australian parliament in 1865, but resigned soon after. In 1867,



The Mitchell Library

Adam Lindsay Gordon

The Australian

John Gorton

Sea Spray and Smoke Drift, his first collection of verse, was published. He then moved to Melbourne, where he made friends with such writers as Marcus Clarke and Henry Kendall. But head injuries from riding accidents aggravated his severe fits of depression, and he committed suicide at the age of 36.

GOROKA (pop. 10,756) is the administrative and commercial centre of the eastern highlands district of New Guinea. The town has an airport and a growing tourist industry. The surrounding district produces coffee, vegetables, passionfruit, and timber. Government patrols first penetrated the area in the 1930s. The first patrol post was opened in 1941. The township was proclaimed in 1953.

GORTON, JOHN GREY (1911-), a member of the Australian Liberal party, was prime minister of Australia from 1968 to 1971. In 1971, Gorton failed to win a vote of confidence from Liberal party members and William McMahon replaced him as party leader and prime minister.

Gorton was born in Melbourne and educated at Geelong Grammar School and Oxford University. He served as a fighter pilot with the RAAF during World War II, and was severely wounded. After several years in shire government, he was elected senator for Victoria in 1950. He held a number of ministries, most of them connected with education and science, and became leader of the government in the senate in 1967.

GOSFORD (pop. 58,093) is a popular tourist resort at the head of Brisbane Water, an inlet on the central coast of New South Wales. The surrounding district provides citrus fruits, vegetables, poultry, timber, and sandstone. The town's industries include citrus processing, and making dairy and meat products, pyrexware, industrial felts, clothing, and cakes for the export market.

The tourist industry is of vital importance to Gosford's economy, introducing more than a million tourists each year. Gosford was proclaimed a town in 1879 and sought city status in 1971.

GOULBURN is the name of two rivers in Australia. Goulburn River in New South Wales is the chief tributary of the Hunter River. The Goulburn River in Victoria rises near Mt. Singleton in the Australian Alps and flows about 563 kilometres (350 miles) to join the Murray River near Echuca. The Goulburn-Murray irrigation district is Australia's largest irrigation area. It covers more than 8,000 hectares (2 million acres) and contains some of Australia's richest farmlands. Its products include most of the apricots, peaches, and pears grown in Australia, as well as fat lambs, beef, and vegetables. Shepparton is the main city on the river. The first important dam, the Goulburn weir, completed in 1889, is still in service. The largest dam, the Eildon dam, was completed in 1956. It is 79 metres (259 feet) high and holds 3,389,658,000 cubic metres (2,748,000 acre-feet) of water.

See also VICTORIA (picture) and SHEPPARTON in the other Australasian volume.

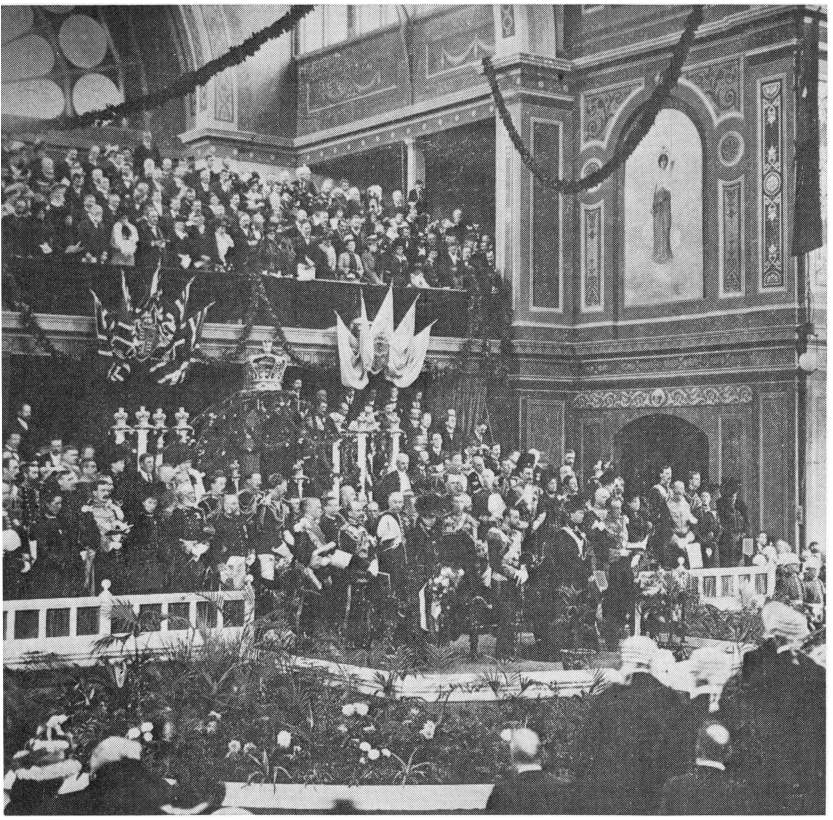
GOULBURN (pop. 21,568) is an important market city of New South Wales. It stands about 610 metres (2,000 feet) above sea level at the junction of the Wollondilly River and the Mulwaree Ponds.

Goulburn is the centre of a rich pastoral area in the Southern Tablelands of New South Wales. Its wool and stock markets are widely known throughout the state. It has a large abattoir, a knitting yarn factory, a boot factory, a cotton textile and carpet factory, and a brush factory. Wool, potatoes, stone fruits, and fodder crops are grown in the area. Fat lambs are produced by farmers between Goulburn and Yass. The city stands on the Hume Highway, and is an important railway centre. Goulburn has two cathedrals, several fine churches and schools, and a College of Advanced Education. Its Lilac Time Festival is held every October.

GOULD, JOHN (1804-1881), a British ornithologist, produced illustrated books on birds from every part of the world. He visited Australia from 1838 to 1840. With the paintings of birds made by his wife, Elizabeth, Gould completed his books on Australian birds in 1848. The Gould League of Bird Lovers is named after him. Gould was born in Dorset. He began work as a gardener and later became a taxidermist with the Zoological Society of London.

GOULD, SHANE (1956-), an Australian swimmer, broke every women's world free-style record in 1971 and 1972. She was born in Sydney and began swimming at the age of 3. Her coach, Forbes Carlile, recognized her potential when she was 10 years old. At the age of 14, she went to Europe with an official Australian team. In London in May, 1971, she broke the world record for 200 metres free-style with a time of 2 minutes, 6·5 seconds. In California, in July, she swam 400 metres in a record time of 4 minutes, 21·2 seconds. In December, she broke the world record for 800 metres free-style with a time of 8 minutes, 58·1 seconds. The same month she broke the world 1,500 metre free-style record with a time of 17 minutes, 0·6 seconds. In January, 1972, she broke the world record for 100 metres with a time of 58·5 seconds. In the 1972 Olympics, she set records by swimming 200 metres in 2 minutes, 3·6 seconds, and 400 metres in 4 minutes, 19 seconds.

GOVE PENINSULA lies at the eastern end of the Arnhem Land Aboriginal Reserve in the Northern Territory. In 1965, an aluminium company was granted a lease covering the bauxite deposits in the central portion of the peninsula. Experts estimate that these deposits contain 150 million tonnes (150 million tons) of bauxite.



Australian News and Information Bureau

The First Federal Parliament was opened at Melbourne in 1901, *left*. Parliament first met at Canberra in 1927, *centre*. It continues to meet at Canberra, *right*.

GOVERNMENT OF AUSTRALIA. Australia is a federation of six states and three territories. Each state has its own parliament, which makes laws for its people on such matters as education and public welfare. A federal parliament makes laws on matters, such as defence and foreign policy, that affect the country as a whole. Each state is represented in the federal parliament.

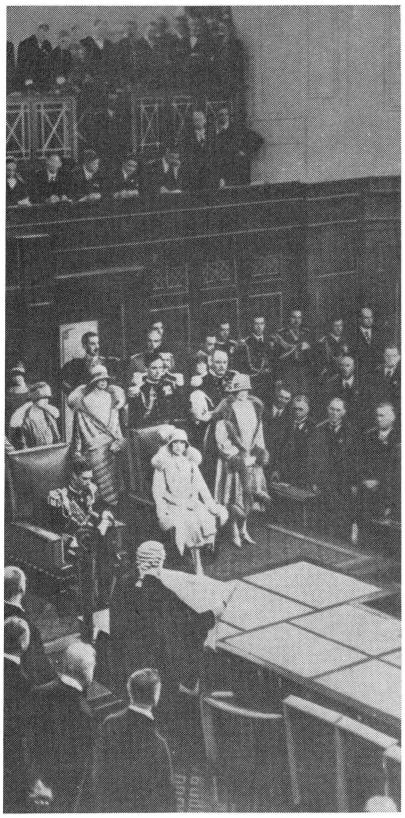
At one time, Australia was under British rule. Today, it is a completely independent country, with the British monarch as its head of state. Australia's official title is the COMMONWEALTH OF AUSTRALIA. The title derives from the Commonwealth of Australia Act, passed by the British parliament, which proclaimed Australia a federation. Many Australians use the word *Commonwealth* to refer not only to their country as a whole but also to the federal authorities. This usage can lead to confusion, because the word is also used to refer to the Commonwealth of Nations, of which Australia is a member. To avoid confusion, many Australians continue to refer to the Commonwealth of Nations by its older name, the British Commonwealth.

The Governor-General

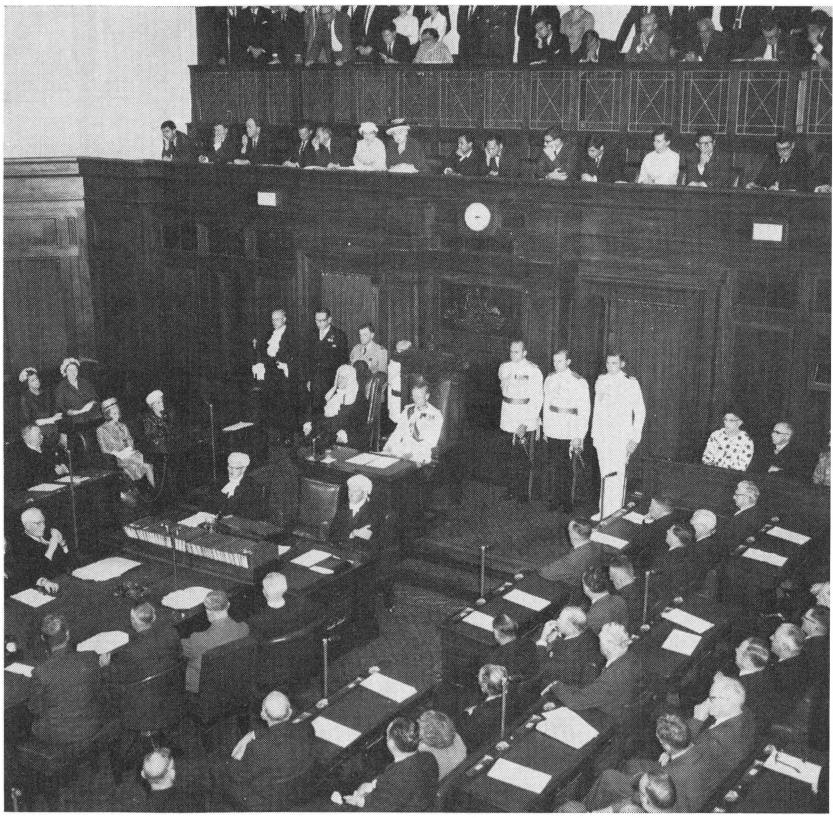
The British monarch is titular head of the federal and state governments. A governor-general represents the monarch in the federal government, and a governor represents the monarch in each state. The monarch chooses the governor-general in consultation with the prime minister of Australia. The monarch may express an opinion, but must accept the prime minister's advice if he insists on appointing a particular person as governor-general. In the past, most governors-general have been eminent persons from Britain, but a firm convention has now been established that only Australians will be appointed.

The governor-general's functions in Australia resemble those of the monarch in Britain. The governor-general is the titular head of the federal government. He summons, adjourns, and dissolves the federal parliament. He appoints the prime minister and other ministers and can also dismiss them. He is the commander-in-chief of the armed forces, and embodies the *executive* (law-enforcing) power of the federal government. But, as a rule, he acts on the advice of his ministers, and the strength of the parties in the federal parliament governs his choice of prime minister. He must choose a political leader from the House of Representatives who can gain the support of a majority of its members.

There are only two important occasions on which he may have to make a personal decision. He may have to decide which political leader he should ask to form a government if no political leader commands a clear majority in parliament. Such a situation may occur as a result of party splits. He may decide to refuse a prime minister's request to dissolve



Sydney Morning Herald



Australian News and Information Bureau

parliament shortly after a general election if he has reason to believe that another leader may be able to obtain a parliamentary majority. But these situations rarely occur.

The governor-general has his chief official residence at the federal capital, Canberra. There, he lives in a handsome old country house called *Yarralumla.* He receives a salary of $A 20,000 a year. He is also provided with staff and other accommodation costing about $A 320,000 a year. The governor-general is not appointed for a fixed term, but terms average about five years.

The Prime Minister

The chief political parties elect their parliamentary leaders by ballot at party meetings. The governor-general appoints as prime minister the leader of the party or coalition of parties that has a majority in parliament. The prime minister's chief duty is to lead his cabinet. He supervises its work, presides at cabinet meetings, plays a leading part in formulating general policy, and acts as chief spokesman of the government both in parliament and before the public.

The prime minister presides over two departments. One, called *the prime minister's department,* is concerned with general government policy. The other, called *the cabinet secretariat,* prepares and follows through cabinet papers.

The prime minister attends the premiers' conferences at which the federal and state governments decide on matters of common interest, particularly financial grants. His department provides the secretariat for these meetings, but the treasurer is usually the chief negotiator for the federal government. The prime minister is the governor-general's chief adviser and takes sole responsibility for major matters such as a decision to dissolve parliament.

The prime minister usually represents Australia at conferences with other countries of the Commonwealth of Nations, particularly Britain. In this way, he takes a direct part in putting the country's external policy into effect. In the past, some prime ministers have also been responsible for a particular ministry. But, today, this practice is seldom followed because of the increased size of cabinets and the work involved in guiding general policy. As party leader, he plays a vital part in the organization and affairs of his party outside parliament.

The prime minister receives a salary and allowances of about $A 40,000 a year. He has an official residence in Canberra, called *The Lodge.* He can remain in office for as long as he continues to command a majority in parliament.

Federal Ministers

In appointing the federal ministers, the governor-general follows the advice of the prime minister.

Ministers must be members of the House of Representatives or the Senate, or become members within three months of being appointed. But, in practice, they must be members at the time they are appointed. Some political parties give their leader a free choice in selecting his ministers. Others elect prospective ministers at a party meeting, but even then they leave it to the prime minister to decide which *portfolio* (duties) to allot to each of them.

As a rule, the federal government does not have *ministers without portfolios*—that is, ministers who are not responsible for specific departments. But governments usually have several ministers who have charge of two or three departments. Constitutionally, it is not necessary for both houses to be represented in a ministry, but, in practice, it is essential. It is also politically necessary to have every state represented. The prime minister and treasurer must be members of the House of Representatives. The distribution of the other departments between the two houses varies greatly from time to time.

The main duty of a minister is to supervise the work of the department or departments to which he is appointed. He must answer for those departments in parliament. Ministers who are members of the cabinet play an important part in formulating policy. In theory, a minister may have to resign for serious errors in the administration of his department. But, in practice, most ministers who resign do so because they have lost the confidence of the prime minister or the support of their party. Ministers must also play a leading part in parliamentary debates. As a rule, one particular minister is responsible for organizing the work of parliament, and various ministers take charge of the work involved in passing bills through each house.

Ministers hold office for as long as the government continues to command a majority in parliament. Loss of support would force a prime minister to resign. When he resigns, his ministers must also resign. The governor-general has legal power to dismiss as well as to appoint ministers. But he does not exercise this power except on the advice of the prime minister. Sometimes assistant ministers are appointed from members of the majority party to help ministers in their work. A minister with a portfolio involving relatively little work can also be appointed to help a more senior minister.

The Federal Executive Council

The constitution officially recognizes the existence of ministers individually, but the only collective body of ministers it recognizes is the Federal Executive Council. The council is a purely formal body, and does not take any part in formulating government policy. Its main work is to put before the governor-general official documents that require his assent or signature, explain their significance to him, and obtain his approval.

All ministers are members of the council. The governor-general can appoint other people as members, but he would not do so except on the advice of the prime minister. In practice, only ministers are members of the council, and only ministers attend its meetings. Their membership ceases when they resign from office. As a rule, only two or three ministers attend the meetings of the council.

The Federal Cabinet

The business of policy-making is carried out at meetings of ministers that are not officially recognized in the constitution at all. The most important of these gatherings is the cabinet. Not all ministers are members of the cabinet. Only senior ministers attend cabinet meetings regularly. Junior ministers attend cabinet meetings only for special purposes. A junior minister may be invited occasionally to attend a cabinet meeting in order to discuss matters connected with his department or to give his opinion on topics of which he has special knowledge.

In 1970, the cabinet consisted of 13 ministers out of a total of 26. In such a small group, the kind of confidential and informal discussion needed to formulate policy can easily take place. The cabinet gets help from a number of subcommittees. Non-cabinet ministers often serve on these committees. The prime minister presides over the department which acts as a secretariat for the cabinet. The secretariat keeps records of cabinet decisions and sees that they are put into effect. Sometimes, the prime minister calls a meeting of all his ministers to discuss general issues of major importance to the country or to the life of the government.

The prime minister or his deputy presides at meetings of ministers. These meetings never take place in the presence of the governor-general. Ministers meet in Canberra at least once a week, and often more frequently, when parliament is sitting. They meet about every three weeks in Melbourne or Sydney when parliament is in recess. The frequency of meetings depends on the pressure and urgency of business.

At cabinet meetings, permanent government officials are usually on hand with papers relevant to the business being discussed. The cabinet may call in an official for consultation, but it rarely does so. The only official who attends meetings regularly is the secretarial officer, an experienced senior civil servant. As a rule, he is secretary of the prime minister's department.

Department officials make their views known to ministers through documents. Before a cabinet meeting, they prepare papers on the questions that the cabinet is to discuss. A summary of the matter, called a *cabinet submission,* is distributed among the ministers. These documents are important because they represent the views of experts in the government departments, and because the cabinet bases its decisions on the information they contain.

The cabinet makes decisions on all matters of general policy, and on many matters of detail if there has been much dispute at lower levels of the government. In a government with the support of a strong majority, the cabinet determines all matters of executive policy and outlines the programme of legislation. It gives preliminary approval to most bills introduced in parliament.

Because the cabinet is an unofficial body, it can

conduct its business with flexibility, secrecy, and informality. It concerns itself primarily with the policy rather than the form of actions and legal instruments. Its decisions do not have legal force until they are later translated into some official form such as a bill to be put before parliament or an Order in Council or Regulation requiring the assent of the governor-general in the executive council.

The Federal Parliament

The federal parliament consists of the British monarch, represented by the governor-general, the House of Representatives, and the Senate. The monarch or the governor-general takes part in meetings of parliament only at the opening of a session. The governor-general reads the *Speech from the Throne,* which is written by the prime minister and sets out the general policy of the government for that session. The only other way in which the monarch takes part in the work of parliament is by assenting to bills that both houses have passed. The bills then become acts, or statutes, forming part of the operative law of the country. The monarch or the governor-general always assents to bills if advised to do so by the prime minister. As a result, the real work of parliament is done by the House of Representatives and the Senate.

The House of Representatives represents the people. All men and women who have reached the age of 21 have the right to vote. They elect members to the house by voting for candidates in order of preference on a secret ballot. The country is divided into constituencies, and the voters of each constituency elect one member to the house. In theory, the constituencies should have roughly the same number of people. But this aim is difficult to achieve in practice because of changes in population. The constitution allows a variation in numbers of 20 per cent. in order to make administration easier and to group together areas with common interests. The constitution also provides that no state should have fewer than five members. As a result, the populations of constituencies vary greatly. The constituencies of Tasmania have smaller populations than those of the more populous states. At the general election of 1963, constituency populations ranged from 30,000 to nearly 100,000. From time to time, parliament has constituency boundaries redrawn to take account of changes in population. Long intervals occur between such revisions, but one was carried out in 1969.

The constitution provides that the House of Representatives should have, as nearly as possible, twice as many members as the Senate. Since 1949, the number of senators has been 60. By 1970, the House of Representatives had 125 members, all with full voting rights. Of these members, 123 represented the electors of the six states. The Australian Capital Territory and the Northern Territory had one member each. Both had full voting rights.

At general elections, voters elect members for a period of three years. But the prime minister may decide to dissolve parliament before its three-year term is over. When a member resigns or dies, his constituents elect a new member at a by-election.

The period between one general election and the next is called a *parliament.* This use of the word is misleading because, as a rule, general elections affect only the House of Representatives, not the whole parliament. A parliament is usually divided into *sessions,* but the law does not require this division. Sessions vary greatly in length. Sometimes a parliament has only one session. It is essential that both houses should sit at least once a year. As a rule, they sit from 20 to 40 weeks a year, in two main periods. These periods extend from February to May and from September to November. The House of Repre-

Australian News and Information Bureau

The House of Representatives usually sits for two sessions a year—from February to May and from September to November.

David Moore

Canberra is the seat of the federal government. The Australian-American War Memorial overlooks government buildings.

sentatives often sits for slightly longer periods than the Senate.

The Senate, in principle, represents the states. Each state, regardless of its population, has 10 representatives. For this purpose, each state forms a single electorate. Voters elect senators on a system of proportional representation (see PROPORTIONAL REPRESENTATION in the main volumes). As a rule, elections to the Senate are held every three years. Usually, they take place at the same time as general elections to the House of Representatives. But only half of the seats in the Senate are filled at each election. The voters of each state elect five senators for a period of six years. At the next election they elect another five for a period of six years. If a senator resigns or dies, the parliament of his state nominates someone to replace him.

The Senate sits at roughly the same times as the House of Representatives. In practice, the Senate does not represent the states in the way that the authors of the constitution intended. Senators usually vote according to their political party, but sometimes senators of different parties combine to protect the interest of the state they represent. In general, the two houses have *co-ordinate powers*—that is, either house can introduce legislation, express its opinions, or carry resolutions on any subject. Both houses must give their assent to a bill before it becomes law. But the power of the Senate is not as great as that of the lower house. Money bills, authorizing taxation and expenditure, must be introduced in the House of Representatives.

Both houses can be dissolved and elections held if the Senate persistently refuses to assent to a bill passed by the House of Representatives. If the deadlock continues after the elections, both houses hold a joint sitting to decide the issue. The Senate is also prohibited from amending money bills, but it can suggest amendments or reject such bills outright. In practice, the position of the Senate is even weaker than it appears in law. Its main work is revising rather than initiating legislation. Usually, the party or coalition with a majority in the House of Representatives also has a majority in the Senate. As a result, the Senate generally does little more than echo the opinions of the lower house. If the majority party in the Senate differs from that in the House of Representatives, the Senate may be tempted to obstruct the legislative programme of the lower house. Persistent obstruction is likely to lead to a dissolution of both houses.

MHRs. Members of the House of Representatives must be British subjects aged 21 or more. They must not have an interest in government contracts, or hold "an office of profit under the Crown". But ministers are exempt from the last provision.

Members take part in parliamentary debates and in the work of parliamentary committees. But committee systems are not as widely used in the Australian as in the British and United States governments. An active member spends much time in his constituency finding out the needs of the people and keeping in touch with party organizations. Members receive a salary of $A 9,500. They are provided with secretarial staff, travelling allowances, and electoral allowances that vary from one constituency to another.

Senators, like members of the House of Representatives, must be British subjects aged 21 or more. Most of the qualifications necessary to become an MHR also apply to senators. They take part in debates in the Senate and look after the needs of the electors. They receive the same salary as MHRs.

Parliamentary Officers. The two chief officers who preside over debates in the House of Representatives are the *Speaker* and the *Chairman of Committees.* The speaker, who is the senior of the two, presides when the house is in full session. The chairman presides when the house is *in committee*—that is, when the whole house is sitting under somewhat different rules from those operating when it is in full session. The members elect both officers at the beginning of a session. The officers generally come from the party or coalition with a majority in the house. But they are expected to be impartial in maintaining order and to remain to a large extent above party politics. As a rule, the speaker does not vote. But he has a casting vote when the number of votes for and against a motion are equal. Speakers, except those from the Labor party, wear wigs and robes like those worn by the speaker of the British House of Commons.

The officer who presides over debates in the Senate when it is in full session is called the *President of the Senate.* The president, like the speaker, must not show favour in debate to any party. He can vote on motions as the other senators do, but he does not have a casting vote. In the Senate, a motion is defeated if the voting is equal.

Each house also has a large clerical staff. The *Clerk of the House of Representatives* and the *Clerk of the Senate* head these staffs. They are particularly learned in the working of Standing Orders, and the rulings of successive speakers and presidents on questions of parliamentary procedure. They control the clerical work of parliament, and advise the speaker or president from time to time.

Powers of the Federal Government

The constitution gives the federal government direct authority over the people. As a result, Australians may be said to have dual citizenship. As a citizen of a state, an Australian elects his parliament. As a citizen of the Commonwealth of Australia, he can vote in elections to the federal parliament.

The federal parliament has a specific set of powers and authorities. It has power to make laws on particular topics, to set up an executive government and public services in order to carry out its laws, and to establish various kinds of law courts. Some of the powers of the federal government are *exclusive*—that is, only the federal government possesses them. The states cannot exercise such powers. For example, only the federal authorities can impose customs duties on goods that are imported into the country from abroad. Other federal powers are *concurrent*—that is, both the federal and the state governments possess them. The federal and state governments can deal with questions on trade and commerce between states.

Before the six colonies formed the Commonwealth, they had wide general powers to make laws for their people under their separate constitutions. Today, they retain most of the powers of government that the constitution does not specifically give to the federal government. But they do not have all powers not given the federal government. The constitution contains *prohibitions* against particular kinds of laws, such as ones interfering with freedom of trade and commerce between the states. But there are not many of these prohibitions. The list of specific federal powers is not long, and, as a result, the states retain a fairly large amount of their power. But whenever a state law conflicts with a federal law, the federal law prevails.

The authors of the constitution expected the federal and state governments to operate in largely independent areas, without much direct contact. They expected that the federal government would control defence, foreign affairs, trade and commerce, and some public services and social services. They believed that the states would retain control over the greater part of ordinary law, most public and social services, and most forms of national development, such as the promotion of agriculture and industry.

But the power of the federal government increased for several reasons. It quickly gained financial power over the states and, today, the states depend on federal grants for about 60 per cent. of their annual revenue. The federal government also gained a large amount of influence in deciding the size and distribution of government loans. Its power to arbitrate in industrial disputes in more than one state has developed into a power to decide basic wage standards for the whole country. In times of national emergency, as in war, it controls nearly every feature of national life.

The constitution is difficult to change. By 1970, only 5 amendments out of 45 proposed amendments had been passed. None of these amendments extended the scope of the federal government to any great degree. The amendment of 1928, authorizing the formation of the Australian Loan Council, increased the power of the government to enforce its financial policy on the states. In 1946, another amendment extended the power of the federal government over social services. The states make little use of their power to refer specific matters to the federal authorities.

The areas in which the federal government has exclusive authority, either in law or in practice, are few. The most important of these are defence and foreign policy, overseas trade, and finance. It has general control over private finance, the level of wages, tariffs, and the aspects of commercial law that relate to bankruptcy, negotiable instruments, patents, designs, trademarks, and copyrights. Its control of trade and commerce between states is unimportant compared with that of the federal government in the United States. The Australian states are responsible for a large part of government, including all the more detailed controls over agriculture and industry and the greater part of the law affecting people in their relationship with one another. The federal government uses its influence in many of these matters, but it does so mainly by methods of co-

operative federalism, rather than by means of direct law-making or administration.

Federal-State Relations

The constitution makes no specific provisions for joint federal-state action. But the federal and state governments co-operate with each other in informal ways. They find co-operation useful in many fields for purely practical reasons. Neither the states nor the federal government insists much on distributing power exactly according to the constitution when the need for co-operation arises. For example, many people doubt whether the federal authorities had a constitutional right to introduce the Snowy Mountains plan for conserving water for power and irrigation (see SNOWY MOUNTAINS SCHEME in the other Australasian volume). New South Wales and Victoria could have objected, but instead they gladly co-operated.

The states co-operate with each other in operating such services as police forces. But they look to the federal government for leadership or help in such projects. The chief bodies through which the federal and state governments co-operate include the Premiers' Conference, the Australian Loan Council, the Conference of Attorneys-General, the Australian Transport Advisory Council, the Australian Agricultural Council, and the Marketing Boards.

The Premiers' Conference. The state premiers and treasurers meet with the federal prime minister, treasurer, and sometimes other ministers at least once a year to discuss matters of common interest. The most important business of the conference is to decide the size and distribution of the main federal financial grants to the states. The federal government gives a number of small conditional grants for such purposes as road-making and education. The conditions on which the grants are paid are settled at the conference. It also pays a fixed grant as a contribution towards interest and sinking-fund payments on loans raised for the states. It makes an unconditional grant to the states out of income tax payments. At one time, income tax was the chief single source of state revenue. But since 1942 only the federal government has collected income tax. The states can impose their own income taxes, but, for political reasons, they find it difficult to do so. In theory, the federal government can dictate state policy by means of conditional grants, but in practice it tends to do so less and less. The Premiers' Conferences are held in Canberra, and the prime minister's department provides a secretariat. The constitution does not officially recognize these conferences. They have much of the informality and flexibility of cabinet meetings.

The Australian Loan Council meets at Canberra at least once a year to decide the size and conditions of all public loans that the six state governments and the federal government propose to raise. The council consists of one representative from each state and one federal representative. The state representatives have one vote each. The federal representative has two votes and a casting vote.

In theory, the states can outvote the federal government. But, in fact, they are usually in disagreement among themselves. The federal government is more powerful than the number of its votes suggests, because of its influence over the Australian banking system and overseas money markets. As a result, the Loan Council really works by negotiation and compromise. Its decisions have legal force. The federal authorities can take action in the courts to prevent a state from ignoring its decisions.

The Conference of Attorneys-General. The attorneys-general of the state and federal governments meet two or three times a year to consider matters relating to law reform and judicial co-operation under their control. The conference has no sanction in law. In the past, it promoted uniform state and federal territory laws on companies, hire-purchase, the upkeep of deserted wives, and child adoption.

The Australian Transport Advisory Council is an extra-legal body concerned chiefly with roads and road traffic. It promoted the use of a uniform traffic code. State governments have adopted most of the provisions of the code.

The Australian Agricultural Council Marketing Boards. The federal and state ministers of agriculture meet regularly to consult one another and to frame uniform policies. The federal authorities and states co-operate to make arrangements for collective marketing in many branches of agriculture. Comprehensive agricultural programmes depend on federal and state legislation, because only the states can regulate the producers, and only the federal government can deal with interstate and overseas marketing arrangements. The Commonwealth Wheat Board is an outstanding example of such co-operation. It handles the whole of the Australian wheat crop under the combined authority of federal and state acts. It consists of representatives of the wheat growers from each state acting under the general control of the federal minister for primary industry.

State Government

The federal government has certain *exclusive* powers, such as defence. It also has *concurrent* powers in areas where the states might claim jurisdiction. The states have only *residual* powers—whatever is left. And even in their residual powers, the states could find federal actions overriding their powers in some way. But generally the states have powers in some important social areas that are not likely to be seriously affected by federal activities. These areas include the general basic *civil* law of the country relating to contracts, property, and civil wrongs, such as motor-car accident liability. The states control *mercantile* law, except for banking, insurance, copyright, patents and trade marks, and negotiable instruments such as cheques. The states also control the general *criminal* law; urban planning; road traffic; prevention of pollution; most forms of health services; the regulation of most forms of industrial and agricultural production; and the regulations of trade and professions.

Five of the six state parliaments consist of two houses, a *legislative council* and a *legislative assembly*. Queensland has only one house. In New South Wales, members of the upper house are elected by a joint

HOW A BILL BECOMES A LAW IN AUSTRALIA

Committee on Ways and Means

Money Bills, setting taxes or making appropriations, officially begin in a message from the governor general or governor, then pass through committees of the lower house.

Tax bills

Previous notice

Individual Members may announce their intention to introduce a bill by *notice*, or may simply bring it up with a motion on the floor of the house.

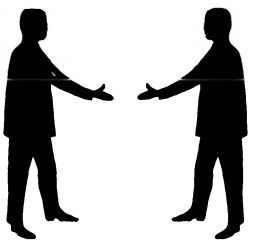
Committee of Supply

Appropriation bills

Motion for leave to introduce

First Reading

At the First Reading, only the title of the bill is actually read. After the bill is passed at this stage, its text is printed and distributed.

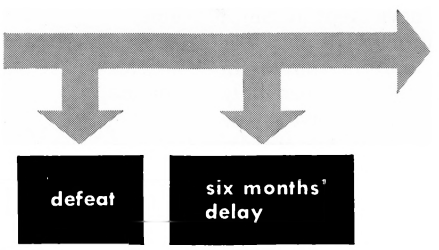


Second Reading

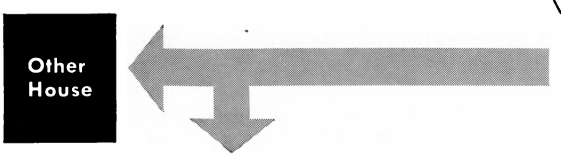
At the Second Reading, members debate the general principles contained in the bill. They may pass it, defeat it, or vote to have it read again six months later, in effect defeating it.

Committee Stage

At the Committee Stage, the Committee of the Whole House debates each clause of the bill, considers amendments to them, and completes the final wording of the entire bill.



The Other House (if there is one) takes the same steps to pass a bill. If it passes a significantly different bill, the originating house must agree to the new version or the bill is lost.



Third Reading

At the Third Reading, members again debate only general principles, but this time in terms of the amended bill.

Assent

The Assent of the governor general or governor is considered automatic. When he signs the bill, it becomes law immediately or at a later date.

sitting of the lower house and the non-retiring members of the upper house. In the other states, the legislative councils are elected by the people. In Victoria and Tasmania, they are elected by the same electors as are members of the lower houses. But in South Australia and Western Australia, they are elected by voters with special professional and property qualifications. The lower houses are elected by all citizens over the age of 21 (or, in Western Australia, over the age of 18). Any citizen eligible to vote may stand as a candidate. Many independent candidates nominate themselves. But most of the candidates elected are supported by one of the main political parties. The parties select candidates by rules of their own making.

In Tasmania, elections are conducted by a system known as *proportional representation.* It is a form of preferential voting that ensures some representation for all major political parties in fairly strict mathematical proportion to their support among the electors. In the mainland states, voting is by the simple alternative vote, another preferential system. See PREFERENTIAL VOTING in the other Australasian volume.

A governor, representing the Queen, formally heads each state government. The governor's role corresponds with that of the Commonwealth Governor-General. Actual power is in the hands of ministers constituting a cabinet. They, like their counterparts in the federal government, are chosen from the majority party or coalition in their parliament.

The laws of the states have kept fairly uniform, because they are based on common law and because changes in the law have tended to follow British models. But differences in detail have crept in. Since 1961, the Conference of Attorneys-General has worked to promote parallel or uniform statutes in important fields of law. This method has had only limited success, because the draft laws have to be adopted by the six state and three territory legislative bodies.

See also the *Government* sections of the articles on the six states in the Australasian volumes.

Local Government

Vast areas of outback Australia are too arid or thinly populated to have local government institutions. But the whole of Victoria and Tasmania and the more closely settled areas of the other states are divided into local government areas. In Tasmania, all local government authorities are called municipalities. In the mainland states, they are divided into various types, which can be classified as chiefly rural (shires or districts) and chiefly urban (cities, towns, and municipalities). The distinctions among cities, towns, and municipalities are based partly on population and partly on financial resources. In some cases, rural shires include townships within their boundaries. In other cases, the townships are separately incorporated as municipalities.

Only in Brisbane has the whole metropolitan area been brought within the control of a single authority —the Brisbane City Council. The other state capitals are divided into a large number of government authorities, many of them called *cities.* For this reason, the cities of Sydney, Melbourne, Hobart, Adelaide, and Perth consist only of the inner cores of the respective metropolitan areas. In those cases, there are various types of special-purpose authorities covering the whole metropolitan area and dealing with such matters as water supply, sewerage, harbour control, and over-all urban planning. Canberra does not even have an urban authority in this sense at all. Local government in the federal capital is divided between the National Capital Development Commission and the Canberra service branches of a number of federal government departments, in particular interior and health.

The local authorities have power to make by-laws and to carry on administrative services in relation to a wide range of matters of local concern. The main functions of Australian local government are street building and maintenance; public works; regulation of building standards; public health and prevention of nuisances; garbage collection; local cultural activities, such as support for orchestras and provision of concert halls; and the purely local aspects of town and country planning. They sometimes have administrative responsibilities connected with social services. But they are not involved in either education or police work.

In many local authority areas, all eligible adults can vote for councillors. Other local authorities allow only those who pay rates to vote. In either case, anyone entitled to vote is eligible to stand for office as a councillor of the appropriate authority. Voting is generally by the alternative vote type of preferential system used for mainland parliamentary elections, and in many but not all cases voting is compulsory. See PREFERENTIAL VOTING in the other Australasian volume.

See also the sections on *Government* in each of the articles on the state capital cities in the Australasian volumes.

Public Service and Statutory Authorities

The business of government requires a large organization of permanent officials, which can be divided into two main categories: the public service and statutory authorities. The public service is organized into departments. Each department has a permanent head, usually called the *secretary,* and is under the control of a minister of government. The organization of departments changes fairly frequently. In 1970, the federal public service had 26 departments. These were the prime minister, the treasury, trade, external affairs, labour and national service, primary industry, defence, supply, civil aviation, the post office, national development, works, shipping and transport, immigration, health, attorney-general, territories, housing, army, navy, air, interior, customs and excise, repatriation, social services, and education and science.

Ministers come and go as governments change. The permanent heads are professional administrators, and serve as chief advisers to the ministers, adapting the policy and tempo of their work to the general outlook of each successive minister. Many permanent heads of departments receive knighthoods for their services. In 1970, the salaries of the most

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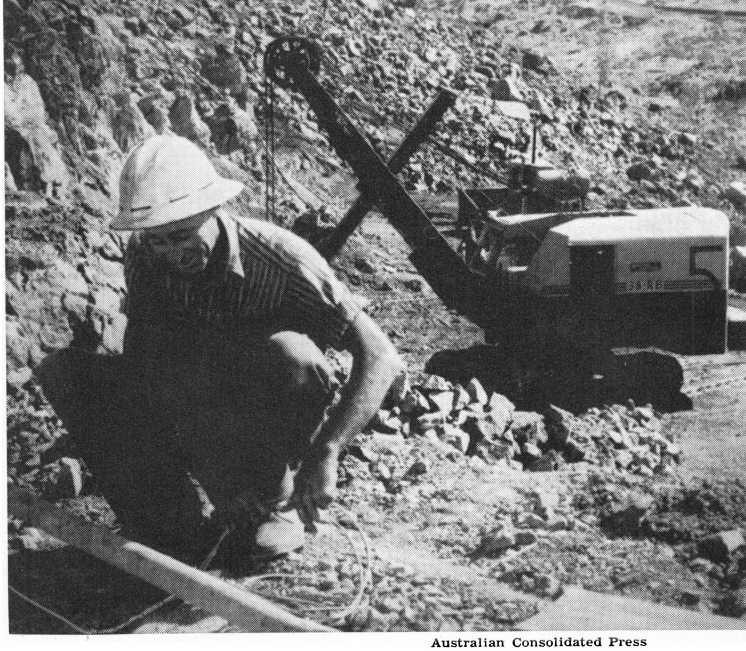


Australian Consolidated Press

Australian Photographic Agency

Government Services cover a wide range of activities. They include medical attention for Aborigines, *above*, surveying mineral resources, *above right*, air ambulances for people in remote areas, *right*, and mobile dental units for school-children, *below*.

Australian News and Information Bureau

Australian News and Information Bureau

The Australian Federation Conference, held at Parliament House, in Melbourne, in 1890, passed a resolution that members should ask their governments to appoint delegates to a national convention to consider plans for a federal constitution.

senior members were approximately $A 20,000 a year.

The Public Service Board controls general conditions of recruitment, promotion, discipline, retirement and superannuation, and general pay and working conditions in the public service. The board is an independent authority whose members have a tenure like that of judges.

The federal statutory authorities are not under the direct control of either the Public Service Board or a minister. Some are completely independent of such control, but most are subject to some direction or advice concerning staff conditions and general policy. The number of statutory authorities varies from year to year. Students of government do not always agree on whether particular boards, commissions, or committees should be treated as independent bodies or as part of a particular government department. For example, the auditor-general plays a leading part in government control. For many purposes, he is answerable only to parliament, but, in some respects, he and his officers come within the department of the prime minister. In 1970, there were at least 40 statutory authorities with a fairly large degree of independence from government departments. The most important of these include the Atomic Energy Commission, Australian Broadcasting Commission, Australian Broadcasting Control Board, Australian Coastal Shipping Commission, Australian National Airlines Commission (including Trans-Australia Airlines), Australian Shipbuilding Board, Commonwealth Scientific and Industrial Research Organization, Joint Coal Board, Overseas Communications Commission, Qantas Empire Airways, Reserve Bank of Australia, Snowy Mountains Hydro-Electricity Authority, and Stevedoring Industry Authority.

History

The Australian system of government developed from the time Australia consisted of the colonies of New South Wales, South Australia, Western Australia, and Tasmania. At that time, Queensland and Victoria formed part of New South Wales. In the 1840s and 1850s, the British government put forward proposals to unite the colonies in some ways. But the colonies had no desire to unite. Victoria and Queensland wished to be separated from New South Wales, and Tasmania, South Australia, and Western Australia did not want to resume or establish a connexion with New South Wales.

The British government was convinced of the advantages of having some central authority in

Australia and of the advantage of having trade agreements among the colonies. In 1849, a Committee of the Privy Council favoured the establishment of new administrative areas in Australia as settlement spread. But it also advised the government to appoint a governor-general and to create a General Assembly, consisting of delegates from each colonial legislature. The assembly would have specific powers, including the power to impose customs tariffs.

The British government introduced a bill giving effect to the council's recommendations, but the Australian colonists strongly opposed it. After a long debate, the government deleted from the bill the provisions to set up a General Assembly. In 1850, the government passed the Australian Colonies Government Act, separating Victoria and Queensland from New South Wales. Victoria and Queensland became separate colonies in 1851 and 1859 respectively.

The discussions that preceded the bill implanted the idea that the colonies should form some kind of association. But the colonists wanted first to gain complete local self-government before giving serious thought to some form of union. After the acts of 1855 and 1856 established responsible government in the colonies, the movement for union gradually began to grow. The problems of defence and interstate trade greatly contributed to its growth. France was gaining possessions in the Pacific area. China and Russia seemed to be developing imperialist policies. In 1887, Germany annexed north-eastern New Guinea. As a result of these developments, each colony began to build up its own defence force.

Soon the colonies realized the advantages of united action both in defence and in foreign relations. Each colony had its own tariff policy, which sometimes conflicted with the policies of the other colonies. As a result, colonies began raising tariffs on goods from other colonies. In 1885, the Federal Council of Australasia Act was passed in an attempt to solve some of the colonies' trading and defence problems. The act established a loose association, including the six Australian colonies, New Zealand, and Fiji. But New South Wales and New Zealand refused to take part in the association. South Australia joined, but later withdrew.

This experiment showed the weakness of a loose confederation, but it helped to convince more people of the practical advantages of a strong federation. In 1890 and 1891, parliamentary representatives held a series of conferences at which they drew up a plan for a union. A conference of popularly elected representatives, sitting in 1897 and 1898, produced a draft federal constitution. The draft was the result of much hard bargaining and many compromises. Queensland withdrew from the conference in its final stages, Western Australia did not send people's representatives, and New South Wales demanded further concessions as well as a referendum passed by a special majority.

After further negotiations with the British government, the federal constitution finally became law in 1900. It came into operation on Jan. 1, 1901.

The states could not agree on the choice of a site for the federal government. As a compromise, the constitution provided that the seat of the federal government should be first in Melbourne, and finally in a federal territory to be provided by New South Wales, not less than 150 miles from Sydney. In 1910, the Canberra area, in the foothills of the Australian Alps, was chosen as a site for the federal capital. In 1911, New South Wales transferred the area, now called the *Australian Capital Territory,* to the federal government. World War I delayed the development of the Capital Territory, and it did not become firmly established until the early 1930s. Canberra did not become the main centre of all federal government activities until after 1945.

In time, the authority of the federal government greatly increased, partly because of the need for central government during World Wars I and II and the economic depression from 1929 to 1933. Other factors that helped to increase its authority included Australia's growth as a social and economic unit and the development of nationalism among its people. But, in spite of these developments, the system remains completely federal. The state governments as well as the federal government have increased their range of activity. In refusing to agree at referendums to fundamental changes in the constitution, the people have shown that they prefer co-operative federalism to a legally unified system.

Aids to Learning

Related Articles. See the Government sections of the articles on the states of Australia in the Australasian volumes of World Book. Other related articles in the Australasian volumes include:

Armed Services of Australia	History of Australia
Canberra	International Co-operation
Federation	Legal System of Australia
Governors and Governors-General	Political Parties of Australia
Health Services	Social Services
	Taxation
	Trade of Australia

Outline of this article is as follows:

I. **The Governor-General**
II. **The Prime Minister**
III. **Federal Ministers**
IV. **The Federal Executive Council**
V. **The Federal Cabinet**
VI. **The Federal Parliament**
  A. The House of Representatives
  B. The Senate
  C. MHRs
  D. Senators
  E. Parliamentary Officers
VII. **Powers of the Federal Government**
VIII. **Federal-State Relations**
  A. The Premiers' Conference
  B. The Australian Loan Council
  C. The Conference of Attorneys-General
  D. The Australian Transport Advisory Council
  E. The Australian Agricultural Council Marketing Boards
IX. **State Government**
X. **Local Government**
XI. **Public Service and Statutory Authorities**
XII. **History**

Books for Younger Readers include:

Forell, C. R. *How We Are Governed.* Cheshire, 1971.

Books for Older Readers include:

Horne, Richard J. *How Laws Are Made.* Cheshire, 1973.
Sawer, Geoffrey. *Australian Government Today.* Melbourne University Press, 1973.

GOVERNMENT OF INDONESIA

GOVERNMENT OF INDONESIA has evolved since a proclamation of independence in 1945 through four main phases, each with special characteristics.

The first phase lasted from 1945 to 1949, during the struggle for independence from the Dutch. During this period, the constitution and political party system took shape in circumstances that necessitated a strong executive power and the widest possible mobilization of popular support for the new government.

During the second phase, from 1950 to 1959, a parliamentary system was maintained. Active political parties contended in parliament and throughout the country to influence the fate of the various governments. But President Sukarno condemned this system of *liberal democracy* because it led to unstable governments that could not heal the divisions in Indonesian society.

The third phase, *guided democracy,* lasted from 1959 to 1966. It began with the "return to the 1945 constitution", which left great power in the hands of the president. Sukarno dominated Indonesia, trying to create a strong government on a system of *musyawarah* (discussion) and *gotong-royong* (mutual cooperation). This approach to Indonesia's political life eventually proved disastrous. Sukarno's regime collapsed as a result of political changes set in motion by an unsuccessful communist-supported attempt to seize power in October, 1965.

In the fourth phase, after March, 1966, effective power was taken by President Suharto and the army. The constitution and institutions of government were not substantially changed. But the character of the regime was distinctly different because of the prominence of the armed forces within the political system, the destruction of the Communist party, and the relative weakness of the other political parties.

Principles of Government

Panca Sila (the five pillars) have been proclaimed as "the philosophic foundations of the Indonesian state". The five principles are:

1. *Belief in the One Supreme God.* All religious groups in Indonesia can agree with this principle, but some Muslims believe that the statement does not go far enough.

2. *Nationalism.* This principle reminds Indonesians that they must be loyal to the nation as a whole and not just to their particular ethnic, regional, or religious groups.

3. *Humanity.* This principle stresses a belief in the essential equality of all human beings. It also contains the idea that international co-operation is desirable.

4. *Sovereignty of the People.* This principle implies that the people as a whole control the state and that government leaders have moral authority only if they do what the people want. This principle is sometimes interpreted by reference to certain traditional democratic methods of village government. These traditional methods formed part of the basic ideas of guided democracy. Traditionally, village people hold a *musyawarah* (discussion) to find a solution that all can accept. Then, they arrive at a *mufakat* (unanimous decision).

5. *Social Justice.* This principle means that the state must ensure a reasonable standard of living for all members of society and that there are no extremes of poverty or wealth. This principle is usually expressed as the goal of "a just and prosperous society".

President Sukarno compressed the five principles of government into one, the principle of *gotong-royong* (mutual co-operation), as the basic principle of government in Indonesia. *Gotong-royong* conveys the idea of voluntary united effort towards achieving common goals.

The Constitution of Indonesia was drafted in 1945 at the beginning of the struggle for independence. It follows the American presidential-congressional model rather than the British parliamentary system. It concentrates strong executive authority in the hands of the president, leaving parliament only the power to *legislate* (make laws) and, in theory, to decide on the budget. The president is not dependent upon a parliamentary majority. The constitution provides that he shall be elected by the People's Consultative Assembly (MPR). The MPR is described as the supreme embodiment of the sovereignty of the people. It consists of the members of parliament and certain other members nominated to represent regions and functional groups, such as the armed forces.

The 1945 constitution is a very short and general document with 37 articles. It lays down certain rules about the powers of various bodies and proclaims a number of basic rights of citizens. But it is in many respects vague about how the functions and responsibilities of various officeholders are to be exercised. During the 1960s, neither the Sukarno nor the Suharto government were seriously inconvenienced by constitutional constraints, because each controlled the representative organs of the state through the power to nominate members. Elections for the parliament were held in 1955 and in 1971. But there is still a large nominated element in the parliament and also in the People's Consultative Assembly.

Constitutional Bodies

The People's Consultative Assembly (MPR) has the task of determining the constitution and laying down the "broad lines of state policy", which the government is obliged to implement. It also has the power to elect the president. It must meet at least once every five years. In practice, it was summoned during the 1960s only to validate decisions or policies on which the president wanted the stamp of general approval. But Suharto relied heavily on the backing of the MPR from 1966 to 1968 during the struggle to push President Sukarno from office. Suharto was designated as president by the assembly in March, 1968. In the 1960s, the assembly was called the MPRS. The S signified that the assembly was provisional until such time as elections were held for a new assembly.

The 920-seat MPR consists of the 360 elected members of parliament (DPR) and representatives of parties, regions, and "functional groups". In 1960, Presi-

dent Sukarno nominated the members of both these bodies. In 1966 and 1967, all Communist and many pro-Sukarno elements of the MPRS and DPR were excluded in a process described as "redressing" parliament.

The People's Representative Council (DPR) is the Indonesian parliament. In 1960, President Sukarno dissolved the elected parliament and appointed new members of the *DPR-Gotong-Royong* (mutual cooperation parliament) after consultation with the three major political parties. Since then, this body has occupied a secondary role in the governmental structure. But it is the main focus of political party activity. It has no power to check the president. On the contrary, during the 1960s, both Sukarno and Suharto were able to exercise control over it through the power they had assumed to dismiss and appoint its members. Its legislative authority is also weakened by the president's power to legislate by decree if necessary. The requirement that legislation must be approved on a basis of *consensus* (unanimous agreement) rather than by majority vote also limits the parliament's scope as a counterweight to the executive.

Nevertheless, the DPR is not a negligible political force. In the 1960s, the government found it more convenient to work with it than against it—to coax and manipulate it rather than override or ignore it. To this extent, it served as a soundingboard of the opinions of the political parties, which the government had to take into account to some degree.

The membership of the DPR consists of 360 elected members and 100 members appointed by the government from the armed forces and from functional groups. In the 1971 elections, functional groups also gained 227 of the 360 seats, the remaining seats being won by the political parties.

The President has a wide range of powers under the constitution. He is head of state and supreme commander of the armed forces, and is authorized to declare a state of emergency—that is, martial law—under conditions laid down by statute. He may also issue "law-substituting government regulations" if necessary, as long as they are later ratified by parliament. President Sukarno made extensive use of that power in the early 1960s and President Suharto used it somewhat less after 1966. But both men, as the dominating figures within their political systems, exercised effective powers that went well beyond the limits prescribed in the constitution. Each was constrained by political rather than constitutional limits—that is, by the requirements of maintaining a power base.

According to the constitution, the president is elected by the MPR for a five-year term. Sukarno's authority did not derive from this source, although in 1963 the MPRS named him president for life. It revoked this title in 1966, then named Suharto acting president in 1967 and president in 1968.

The Vice-President is provided for in the constitution, to assist the president or replace him in the event of illness or death. But since Mohammed Hatta, who occupied the office from 1945 to 1956, no appointment has been made to this position because of the serious political difficulties involved.

The Cabinet consists of the ministers in charge of particular government departments and a few with special portfolios. They are appointed by the president and are responsible solely to him. By 1972 there were 24 ministers, but the number was much larger during the late Sukarno era, when the membership was reshuffled at frequent intervals. The status and efficiency of the cabinet declined seriously under Sukarno, but Suharto restored it to a more central role in the administrative structure. There has been little sense of collective responsibility for cabinet decisions. The ministers exercise influence individually within their own departments rather than as members of a decision-making body.

The Supreme Advisory Council is a body to advise the president, who appoints its members. Sukarno made use of this body in a way which heightened its influence from 1959 to 1963, but it has had little significance since then.

Government Administration

Ministries. The major departments of the government have changed relatively little in form over the last 20 years. There has been a striking degree of continuity in many of them since colonial times—notably in finance, home affairs, justice, agriculture, and public works. Many changes in the structure of the cabinet and number of ministers occurred during Sukarno's time, but the workings of the departments were not greatly altered.

The Civil Service has grown enormously since Dutch times—from about 140,000 persons then to nearly 1,600,000 by 1968. That figure excludes about 600,000 members of the armed forces and over 800,000 employees of state enterprises. Wages are not adequate and many civil servants fill several jobs. Job duplication has reduced the efficiency of the administration. But attempts to cut the number of civil servants have been unsuccessful.

Local Government

Indonesia has five levels of regional administration. The relative importance of the levels varies from area to area. These levels are the province (*propinsi*), the residency (*keresidenan*), the regency (*kabupaten*), the district (*kewedanaan*), and the sub-district (*kecamatan*). The central government appoints officials at all these levels. The army plays an important part in regional and local government. Representative councils which exercise some autonomous powers have been created at the level of the province and the kabupatun. Below the sub-district level are the villages. The villagers elect their own officials. The village "head" leads them. Many villages have elected village councils. Most of them contain many of the prominent members of village society, such as teachers, landholders, and Muslims who have made a pilgrimage to Mecca.

The Army

The army has played a role of enormous importance in the Indonesian political system since 1966,

but the nature of its power is not easily defined. During the previous period, the leaders of the four armed services and many other senior officers exercised considerable influence as ministers in Sukarno's cabinets. Representatives of the armed forces were also included in parliament and other representative bodies. Moreover, regional military commanders exercised wide-ranging security powers under martial law and similar regulations. But until 1965 the power of the armed forces was curbed by President Sukarno. He was able to maintain his authority by balancing the political parties, particularly the Communist party, against the anticommunist army leaders. He was also able to balance one service against another, and faction against faction among the officers.

After the overthrow of Sukarno following the October, 1965, coup, there was no comparable counterbalance to the army's power. In 1966 and 1967, the civilian elements of the "New Order" constellation —especially the student action fronts and various Muslim and Christian organizations which were prominent in the overthrow of the Communist party and Sukarno—saw themselves as partners with the army. They wanted to share power with the army in a new, more democratic political system. But as their influence decreased, the supremacy of the armed forces became more obvious. In the late 1960s, senior officers occupied important positions in most government departments and agencies. Lower-ranking officers filled supervisory posts, which paralleled the ranks of regional civil authorities at almost every level from provincial governor down to village official. In many places, military officers were appointed to regional civilian posts—sometimes with popular acclaim, sometimes from considerations of prudence, and sometimes as a result of strong pressure from above.

Formally, the distinction between the civilian administrative ranks and the military command structure was preserved, despite appointment of numerous officers to the civilian administration. These appointments gave the armed forces an unofficial network of influence in the civilian administration.

The Indonesian Parliament is now called the *Dewan Perwakilan Rakyat-Gotong-Royong* (The Mutual Co-operation Parliament). Its task is to assist the president.
Keystone

At the highest government levels, civilians still predominated. They held posts in the cabinet and in the senior ranks of most ministries. But high-ranking officers were appointed to nearly all departments and exercised considerable influence. Martial law was revoked in most of Indonesia. But regional military commanders still exercised certain informal powers that generally exceeded those of the provincial governors and lower officials.

Economic Problems

Indonesia has been faced with severe economic problems since late in the colonial era. Its population has been increasing by about 3 per cent. a year and overall production has barely kept pace with this rapid increase. Indonesia must import 10 per cent. of its rice needs, though rice production has been increasing steadily. But there has been little expansion of export crops since about 1955. The main task of the government is to stimulate an increase of agricultural production under the 1969-74 Five Year Development Plan.

The economy deteriorated disastrously during the period of President Sukarno's guided democracy. There were two main reasons. First, severe price inflation resulted from the huge budget deficits Sukarno ran up. Second, Sukarno used disruptive measures to try to regulate economic life in defiance of the forces of supply and demand. The nationalization of all Dutch enterprises in 1958 brought most of the big plantations, trading companies, and banks into the government's hands. But their efficiency declined seriously. Exports decreased and government revenues also decreased.

The Suharto regime was dramatically successful in stopping inflation, which had risen to over 600 per cent. between June, 1965, and June, 1966. The decline in production was gradually reversed in the years after Suharto assumed power. He was able to balance the budget, maintain price stability, and restore confidence in the currency. Suharto dismantled many of the crippling controls set up under Sukarno and restored attractive conditions for overseas capital investment. Substantial foreign aid from a group of western nations, and generous rescheduling of Indonesia's debt repayments, were crucial factors in the success of Suharto's stabilization scheme.

Indonesia has received large amounts of foreign aid since 1950, but relatively little private capital. Its foreign debts amounted to $US 2,300 million in 1966, about half of that sum to the Soviet bloc, mainly for arms. From 1966 to 1970, Indonesia accumulated further debts of nearly $US 1,000 million. Proposals for the remission of interest on the debts and rescheduling of payments of principal over a long period were devised by a German banker, Dr. Abs. The proposals were accepted by the western creditor nations. But Indonesia's burden of debt repayments will remain heavy for a long time to come.

Production began to increase in many sectors, after 1966. Progress has been slow because of sluggish demand, due to low purchasing power. In the Five Year Development Plan, the government is concentrating its efforts on raising production in the agricultural sector, rather than on industrial development. The plan is modest but realistic, in sharp contrast with the previous Eight Year Plan of 1960, which achieved nothing. Oil and timber production are seen as the main sources of increased export earnings. There are good prospects of increasing rice production in Java through high-yielding seeds and the use of fertilizer, if the government's rice price policy creates sufficient incentive to peasants.

History

Various forms of government have come and gone throughout Indonesia's history. Some of the political institutions that were established persisted over long periods. They still influence traditional patterns of political behaviour.

The earliest political institutions were little more than village or family groups. Sometimes they became united into small principalities under local rulers. The concept of kingship seems to have spread along with Hindu and Buddhist ideas of religion, society, and government between the 400s and the 1200s. A number of Hindu kingdoms are known to have existed, some of them with elaborate religious and bureaucratic structures. They were supported by the products of irrigated rice lands and the labour of the peasants. According to Indian ideas of kingship, the ruler was descended from a god or was himself a god in human form. See HISTORY OF INDONESIA (Indian Influences) in this volume.

Islam began to spread in Indonesia about A.D. 1200. Many Indonesian princes became Muslims, especially after 1400, as a symbol of their independence of the old Hindu kings. These Muslim sultans retained many of the Hindu-Buddhist forms of society and government.

Dutch traders arrived in the East Indies soon after 1600, initially to purchase spices in the Moluccas. In 1619, they established a fort in West Java at what they called Batavia, now known as Jakarta. The Dutch gradually extended their control over most of Java. But they did not establish control over the whole of what is now Indonesia until the late 1800s. Many Indonesian states fought against the spread of Dutch rule, but the Indonesians were gradually reduced to subjection.

The Dutch governed most of the areas outside Java by *indirect rule*—that is, they maintained the local princes while depriving them of power to act in any way except under Dutch orders. In Java, the Dutch worked largely through aristocrats whom they fitted into their own system. Dutch rule in Java during the 1800s exploited villagers and forced them to grow crops for the Dutch government. But after 1901, the Dutch adopted what they called an *ethical policy,* which involved education and improved social welfare for the Indonesians. In 1918, the Dutch opened a *Volksraad* (people's council) with both European and Indonesian members. But most Indonesian nationalists were not satisfied with this limited political power. Later, the Dutch suppressed nationalist organizations and exiled their leaders to remote islands.

GOVERNMENT OF INDONESIA

The Japanese defeated the Dutch in 1942, during World War II. They divided Indonesia into three administrative zones, controlled by the Japanese armed forces. Later, Japan tried to gain Indonesian support for its war effort and freed nationalist leaders jailed by the Dutch. These leaders set up a preparatory committee for independence. This committee helped to prepare the constitution that went into force in August, 1945, and again in 1959.

Two leaders, Sukarno and Mohammad Hatta, declared Indonesian independence on Aug. 17, 1945, two days after the Japanese announced that they would surrender. The Indonesians fought against Dutch attempts to take control again. In 1949, The Netherlands finally conceded sovereignty to Indonesia. The Indonesians agreed to establish a federal government of 16 small units, as the Dutch wanted. This federal system crumbled quickly after Dutch troops left Indonesia. It was replaced by a unitary system in 1950. Under the system of government that then came into operation, Sukarno became president and Hatta vice-president.

The period from 1950 to 1958 was a period of liberal democracy. Parliament was the main scene of political activity. The political parties determined the fate of the governments. But parliament's prestige was low and there were too many political parties to maintain a stable government.

Elections were held in 1955 for parliament and for a constituent assembly to draw up a permanent constitution. They were well conducted and fiercely contested. But the strength and number of parties was not greatly changed. The major parties remained in deadlock. A strong, stable government still seemed unattainable.

The Armed Services play an important part in governing Indonesia, acting in both central and local affairs.

Paul Popper

In 1956 and 1957, the government's authority was challenged by a series of regional revolts, led by certain local military commanders. Finally, in 1958, the government ordered the army to crush the revolts in the islands of Sumatra and Sulawesi.

These events strengthened the influence of Sukarno and the army leaders. Sukarno was anxious to reduce the power of political parties by establishing the system he called *guided democracy*. The army leaders favoured a return to the 1945 constitution, with its strong executive power. Because of a deadlock in the constituent assembly, Sukarno was able to re-enact the 1945 constitution by presidential decree. He assumed direct personal authority, then reconstituted the parliament, and finally set up the MPRS during 1960.

Throughout the era of guided democracy, President Sukarno created a number of bodies not mentioned in the constitution that served his particular political purposes. The most prominent of these was the *National Front,* which was intended to mobilize the masses at all levels of society, in order to promote the aims of the Indonesian revolution. The National Front served as an important instrument through which the government could control mass demonstrations during the "confrontation" campaign against Malaysia. But it provided wide scope for the Communists and became unpopular with the army leadership. It was abolished in 1966.

From 1959 to 1965, the main political forces were President Sukarno, the army, and the Indonesian Communist Party (PKI), which was the best organized political party. Sukarno used the PKI to counterbalance the army. By proclaiming the doctrine of *Nasakom,* he insisted on the cooperation of nationalist, religious, and communist groups in all major political organizations. Sukarno's great power was based on his prestige as leader in the struggle for independence, on his skill as an orator, and on his political skill in balancing diverse forces. Because the PKI seemed to be gaining strength in 1964 and 1965, particularly as a consequence of the "confrontation" policy launched against Malaysia, the army leaders became restive with Sukarno and the *Nasakom* policy.

On Oct. 1, 1965, a small group of army and air force officers tried to take power in a *coup d'état.* The officers had the support of the communists. The coup was suppressed largely by the actions of Major General Suharto, commander of the army's strategic reserve. From then onwards, Suharto occupied a position of decisive importance during a period of political crisis (see SUHARTO in the other Australasian volume). The PKI was held to blame for the attempted coup and, during the following months, the party was virtually destroyed. Several hundred thousand communists were killed or arrested.

President Sukarno tried to shield the PKI and to prevent its dissolution. Army leaders were determined to reverse his *Nasakom* policy but did not initially attempt to overthrow him for fear of provoking civil war. But, after a series of student demonstrations in Jakarta early in 1966, Suharto was forced to take action against Sukarno. By a decree of March 11, Sukarno transferred strong executive

Camera Press

Suharto, *right,* **received wide powers from Sukarno,** *left,* **in 1966. He gradually took complete control of the country.**

powers to Suharto to restore law and order. On the basis of this authority, Suharto banned the PKI, arrested many former ministers, and set about reconstituting the government, although Sukarno still remained president.

One of Suharto's earliest acts was to summon the MPRS in June, 1966, in accordance with his promise to return to a constitutional and democratic form of government, with elections within two years. Suharto based his authority on the MPRS and the "New Order" political forces which included the intellectuals, student action fronts, and Muslim parties that had opposed the PKI and Sukarno. Included also were the "modernizing" army leaders. Suharto built his strength and forced Sukarno to withdraw from the political stage. Sukarno was reluctant, but his powers were gradually reduced by the MPRS, which proclaimed Suharto president in March, 1968.

Suharto's promise of elections in 1968 posed problems for the "New Order", because it was highly possible that the pro-Communist and pro-Sukarno forces would win. During 1967, discussions of the election law bogged down because of disagreement among the parties, so the elections were postponed until 1971. This postponement further weakened the influence of the political parties in opposing the army, and gradually the "New Order" coalition began to disintegrate.

The army emerged more clearly than ever as the major source of Suharto's power, though he still had to maintain a delicate balance between pro-Sukarno and militantly "New Order" groups of officers. Similarly, he preserved a balance between civilians and military men in the government, between Muslims and secularists, between traditionalists and modernizers. In balancing forces, Suharto operated in much the same way as Sukarno. But Suharto avoided the extremes of undisguised military rule and of open ideological conflict. At the same time, he kept the initiative in his own hands.

Late in 1969, Suharto decided to press ahead with elections in 1971, in accordance with the earlier MPRS decision. He announced that the new parliament would contain one-third nominated members of functional groups, as well as elected members of the nine recognized political parties and of functional groups. Political observers correctly predicted that the character of the regime would not be radically changed by the election, but that it marked a step in the direction of more representative government.

Aids to Learning

Related Articles. See POLITICAL PARTIES OF INDONESIA and its list of related articles in the other Australasian volume. See also the following articles in the Australasian volumes:

Armed Services of Indonesia
Health Services
History of Indonesia
International Co-operation
Legal System of Indonesia
Social Services
Taxation
Trade of Indonesia

Outline of this article is as follows:

I. Principles of Government
- A. Panca Sila
- B. The Constitution

II. Constitutional Bodies
- A. The People's Consultative Assembly
- B. The People's Representative Council
- C. The President
- D. The Vice-President
- E. The Cabinet
- F. The Supreme Advisory Council

III. Government Administration
- A. Ministries
- B. The Civil Service

IV. Local Government

V. The Army

VI. Economic Problems

VII. History

Books to Read about this topic include:

Grant, Bruce. *Indonesia.* Melbourne University Press, 1964.

McVey, Ruth T. *Indonesia.* Human Relations Area Files, 1963.

Malaysian Information Services

At the Parliament Buildings in Kuala Lumpur, the Dewan Ra'ayat and Dewan Negara debate government policy.

GOVERNMENT OF MALAYSIA is democratic and federal, and resembles the government of Australia. Political power is shared between a central parliament, consisting of two houses, and 13 state parliaments. The actual government in each parliament is selected from members of the political party that has most members in the parliament.

The official head of the federal government is a non-political figure, the *Yang di-Pertuan Agong* (king). Each of the 13 states has a similar non-political head. The judges who staff Malaysia's courts are also non-political, and are appointed for a fixed period. In addition, Malaysia has efficient, non-political civil servants, recruited and promoted on the basis of their professional ability.

Malaysia chose this system of government largely because of the influence of British officials who controlled most of the country before Malaya won independence in 1957. The British prepared the various states for independence by setting up the bodies that later became state parliaments. The big change after independence was that Malaysia adopted a federal pattern of government, with a central parliament. Until that time, British officials had co-ordinated the activities of the state bodies.

The Constitution

The constitution of Malaysia is a written document. It gives the federal government wide powers to control defence, foreign policy, agriculture, manufacturing, and trade. State governments have little power except in controlling land. But Sabah and Sarawak have more powers than the other 11 states. In addition, the constitution provides many guarantees for the rights of individual citizens in such matters as freedom of speech and freedom from arrest. But, during a national emergency, citizens have to give up some of these rights in the interests of their country's security. In 1964, the government imposed restrictions on some of its citizens' rights because of its struggle with Indonesia and its concern about the activities of communist supporters inside Malaysia.

To make important changes in the constitution, two-thirds of the members of both houses of the federal parliament must agree that the changes are necessary. A majority of members is enough to authorize unimportant changes.

The Monarchy

The Yang di-Pertuan Agong is Malaysia's head of state. He is elected for a term of five years from among the nine hereditary monarchs who rule various states in Malaya. The nine rulers elect one of their number to be the Yang di-Pertuan Agong on a basis of seniority. The monarch who has ruled longest in his own state has the best chance of being elected.

The Yang di-Pertuan Agong acts mainly on the advice of the prime minister. But he has two important functions. He chooses the prime minister, although, in fact, his choice is limited to the person who is able to obtain most support in parliament. He also has the power to agree or refuse if the prime minister proposes to hold a new general election before the end of the usual five-year period of government.

The Conference of Rulers consists of the nine rulers of Malayan states and the governors of Malacca, Penang, Sabah, and Sarawak. The conference has considerable authority in deciding questions relating to the Muslim religion or to the rulers' positions.

Parliament

The federal parliament is the body that makes and changes federal laws. It is also valuable as a forum where its members can air grievances and publicly

criticize government policies. But, ever since the foundation of Malaysia, in 1963, more than three quarters of the members of parliament have belonged to the same political party as the members of the government. There has been little opposition to the government in the Malaysian parliament.

Dewan Ra'ayat is the Malaysian House of Representatives. It has 144 members elected by the various states. Johor elects 16, Kedah 12, Kelantan 10, Malacca 4, Negri Sembilan 6, Pahang 6, Penang 8, Perak 20, Perlis 2, Sabah 16, Sarawak 24, Selangor 14, and Trengganu 6.

Elections to the Dewan Ra'ayat are held at least once every five years. Malaysia has an electoral commission that divides each state into *constituencies* (voting areas). The people of each constituency elect one representative to the Dewan Ra'ayat. All citizens of Malaysia who are over 21 can vote if they want to, but voting is not compulsory.

Members of the Dewan Ra'ayat receive a salary for their services. Many of them have additional, full-time jobs because the Dewan Ra'ayat meets only about four or six times a year. All the members belong to political parties.

Dewan Negara is the Senate of the Malaysian parliament. It has 58 members, 26 of them elected by the 13 state parliaments, and 32 appointed by the Yang di-Pertuan Agong on the recommendation of the prime minister. They are usually appointed to the Dewan Negara for six-year terms and they are paid for their services.

The Dewan Negara has less power to make laws than the Dewan Ra'ayat. It meets immediately after the Dewan Ra'ayat and reviews the bills that the Dewan Ra'ayat has just passed. In theory, if it disagrees with the government about a financial law, it can delay the law for a month. It can delay other laws for a year. In practice, the Dewan Negara usually agrees with the government. Many of its members are appointed on the recommendation of the prime minister in return for political services.

The Central Executive

The central executive consists of the prime minister and the members of his cabinet. They are the mainspring of government, making long-term plans for Malaysia's development and defence, and seeing that the necessary legislation proceeds through parliament. In addition, they supervise the work of government departments and give orders to the leading civil servants who head them.

The Prime Minister has the most powerful position in the cabinet and in the government. The Yang di-Pertuan Agong is the official head of state, but his powers are much more limited than those of the prime minister. The Yang di-Pertuan Agong is mainly valuable as a symbol, a kind of living counterpart to the national flag or the constitution. The prime minister is a political leader and the chief executive of the government.

The Yang di-Pertuan Agong appoints the prime minister, but does not directly appoint the other members of the cabinet. For this reason, the prime minister is the link between the Yang di-Pertuan Agong and the cabinet, and the other members of the cabinet are chosen through him. In practice, he has the power to appoint and dismiss cabinet ministers. The prime minister presides over cabinet meetings, and is the main representative of Malaysia in contacts with other countries.

The prime minister's strength rests largely on his strength within his own political party. He is the leader of his party. But, if a revolt developed inside his own party, he might have to resign from his position as prime minister.

The Cabinet is a small group of men who help the prime minister to govern the country. The prime minister usually chooses them from the Dewan Ra'ayat, but he may also choose members of the Dewan Negara. Cabinet ministers help the prime minister in two main ways. Each minister is usually responsible for supervising one or more government departments. In addition, all members of the cabinet have a general responsibility for running the government as a cabinet. All of them must support all government policies, at least in public.

Government Departments are grouped into various ministries, each of which is the responsibility of a cabinet minister. The minister is the link between the government and the professional civil servant who is the real executive head of the department. He sees that the department does its work according to government policies. There are about 100 government departments in Malaysia, but some of them are extremely small and are subdivisions of other departments. Important government departments include the departments of agriculture, broadcasting, commerce and industry, education, and police.

The Federal Civil Service consists of about 80,000 people who work in the various government departments. The qualifications and training they need for their jobs depend on the level at which they work—administrative, executive or supervisory, clerical, or manual. A government department, called the *Prime Minister's Department,* controls the civil service. The civil servant who is the head of the Prime Minister's Department is also the official head of the federal civil service in Malaysia.

Government of States

State governments, except in Sabah and Sarawak, have few powers. Their most important functions include control of land administration, control of local government within the state, provision of low-cost housing, and provision of a fire service. In addition, Sabah and Sarawak can refuse to admit immigrants into their territories, even from Malaya.

State Rulers. All the states of Malaya, except for Penang and Malacca, have *rulers* as their official heads of state. Most of the rulers have the title of *Sultan,* but the ruler of Perlis is called *Raja,* and the ruler of Negri Sembilan is called *Yang di-Pertuan Besar.* In most states, a ruler's eldest son succeeds to the throne when the ruler dies. But in Negri Sembilan the ruler is elected from among all the sons of the royal family, and in Perak three royal families take it in turns to succeed to the throne. The rulers are the heads of the Muslim religion in their states. In

addition, they have the same powers within the constitutions of their states as the Yang di-Pertuan Agong has in the constitution of Malaysia. They choose the state's chief minister and give him permission to hold elections.

Penang, Malacca, Sabah, and Sarawak have heads of states who are not hereditary. The Yang di-Pertuan Agong appoints them for four-year terms after consulting the chief minister of the state concerned. The heads of state in Penang, Malacca, and Sarawak are called *governors*. In Sabah, the head of state is called the *Yang di-Pertua Negara*. The governors and the Yang di-Pertua Negara have much the same position as the rulers in the other nine states. But they have no religious duties, and they lack the traditional authority of the rulers.

Legislative Assemblies are the parliaments of the various states. They hold debates and pass laws on subjects that come within the powers of the states. The people of each state elect representatives to their legislative assembly for five-year terms. The members of the legislative assemblies receive salaries and most of them belong to political parties.

The numbers of members in the legislative assemblies vary among the various states. For example, the legislative assembly of Sarawak has 39 members, but the legislative assembly of Perlis has only 12.

Executive Councils are the cabinets of the state governments. The head of the executive council in each of the nine states that have rulers is called the *mentri besar*. In the four other states, he is called the *chief minister*. His functions are similar to those of the prime minister in the federal government.

State Administration. All the states are divided into districts except Perlis, which is too small. A district officer and several assistant district officers

The Yang di-Pertuan Agong (King) of Malaysia is elected for a five-year period by the rulers of Johor, Kedah, Kelantan, Negri Sembilan, Pahang, Perak, Perlis, Selangor, and Trengganu. The Sultan of Trengganu was chosen to serve from 1965 to 1970.

Sultan of Johor **Sultan of Kedah** **Sultan of Kelantan**

Governor of Malacca **Yang di-Pertuan Besar of Negri Sembilan** **Sultan of Pahang** **Governor of Penang** **Sultan of Perak**

Raja of Perlis **Yang di-Pertua Negara of Sabah** **Governor of Sarawak** **Sultan of Selangor** **Sultan of Trengganu**

administer each district. Originally, British officials introduced the system of district officers before Malaysia had any elected local authorities. Today, the district officers administer areas not covered by local authorities, carry out the decisions of local authorities in areas where they do exist, and co-ordinate the activities of local, state, and federal government departments. In addition, each state has its own civil service. There are about 20,000 state civil servants.

Federal-State Relations

Federal and state governments co-operate through three bodies—the National Council for Local Government, the National Land Council, and the National Finance Council. The National Council for Local Government co-ordinates the work of local authorities. The National Land Council deals with the administration of land. Most matters relating to land are the responsibility of state governments. But the federal government is responsible for the Federal Land Development Authority, a body which develops new land and settles people on it. The National Finance Council makes financial arrangements between the federal and state governments. The federal government obtains its finances from a wide range of taxes. Much of its wealth comes from a tax on the export of rubber. State governments have only a few sources of income of their own. About a third of their income comes from grants made to them by the federal government. Some grants are based on their population and some on the number of miles of roads they have. The governments of Sabah and Sarawak receive extra grants to pay for their extra functions.

Local Government

Local government is not highly developed in Malaysia. Some country areas do not have any local government authorities. Some local authorities have few powers and their finances are strictly controlled by the state governments. Kuala Lumpur, Malaysia's capital city, does not have a city council. It is governed by a commissioner, helped by a body of advisers.

The main kinds of local authorities in Malaysia are municipalities, town councils, town boards, rural district councils, and local councils. Their functions vary. Municipalities, which have large populations concentrated in small areas, are responsible for a wide range of services, such as public health, electricity and water supplies, fire prevention, public works, public transport, town planning and building, traffic control, and veterinary services. Smaller authorities may have only simple functions in such matters as public health or roads. Most local authorities, except municipalities, are extremely dependent on the advice and co-operation of district officers.

History

Malaya was divided into states, similar to the present states, even before 1800. Local chiefs held considerable power in most of the central and southern states. The Siamese often overran the northern states.

British influence in Malaya began in 1786, when the British East India Company leased the island of Penang from the Sultan of Kedah. British authorities continued to expand their activities in Malaya and in neighbouring areas throughout the 1800s. By the late 1930s, there were three types of territories in Malaya under varying degrees of British rule. The *Straits Settlements,* which consisted of Malacca, Penang, and Singapore, were governed directly by British officials. The *Federated Malay States*—Negri Sembilan, Pahang, Perak, and Selangor—were partly ruled by British officials. But they left some powers in the hands of the rulers of the states. The rulers of the five *Unfederated Malay States*—Johor, Kedah, Kelantan, Perlis, and Trengganu—retained even wider powers. Both Sabah and Sarawak were British protectorates (see PROTECTORATE in the main volumes).

After World War II, Singapore was separated from Malaya, and Sabah and Sarawak became British colonies. In 1948, British and Malayan leaders agreed to form the *Federation of Malaya,* a union of all the Malayan states. The agreement paved the way for Malaya's independence by setting up a legislative council and an executive council, which later developed into a national parliament and cabinet. Malaya gained full independence in 1957. In 1959, Singapore won independence in home affairs, but its defence and foreign policy remained under British control.

In 1963, Malaya, Sabah, Sarawak, and Singapore joined together to form the new state of *Malaysia.* Tunku Abdul Rahman, who had previously been the prime minister of the Federation of Malaya, became the first prime minister of Malaysia (see ABDUL RAHMAN, TUNKU, in this volume).

During the first years of its life, the government of Malaysia had to face many strains. President Sukarno of Indonesia objected to the fact that Sabah and Sarawak had joined Malaysia, and he began a policy that he called "confrontation". Indonesia organized a series of armed invasions into Malaysian territory, especially Sarawak, from 1964 to 1966. The attacks forced the Malaysian government to spend money on defence, rather than on improving other government services.

In addition, the new state of Malaysia was strained by a series of disputes between the federal government and the Singapore government. The disputes were partly about political ideas and partly about the sharing of federal and state revenues. Eventually, both governments decided that it was impossible for them to agree, and, in 1965, Singapore left Malaysia and became independent. Strains between the Malay and Chinese communities led to riots in 1969, and parliament was suspended.

Related Articles. See the articles on the various states of Malaysia in the Australasian volumes of WORLD BOOK. Other related articles in the Australasian volumes include:

Armed Services of Malaysia
Government of Singapore
Health Services
History of Malaysia
International Co-operation
Legal System of Malaysia
Malaysia
Political Parties of Malaysia
Singapore
Social Services
Taxation
Trade of Malaysia and Singapore

GOVERNMENT OF NEW ZEALAND

GOVERNMENT OF NEW ZEALAND. New Zealand has a simple form of parliamentary government. It has a head of state, Queen Elizabeth II, who is represented in New Zealand by a governor-general. It also has a head of the government, the prime minister. He leads the majority party in New Zealand's parliament.

In many ways, the government of New Zealand is modelled on that of Britain. The British ruled New Zealand for 67 years. Then, in 1907, they granted New Zealand full internal self-government, with the official title *Dominion of New Zealand.* In 1947, New Zealand finally cut its ties with Britain and formally gained full independence. Since that time, the term *Dominion* has been abandoned.

New Zealand is a member of the Commonwealth of Nations. It is one of the few Commonwealth countries with a parliament consisting of only one house. The country had an upper house, the Legislative Council, but abolished it. Now it has only the House of Representatives.

The Governor-General

A governor-general represents the sovereign as the head of state. The sovereign chooses the governor-general in consultation with the prime minister of New Zealand. The head of state may express an opinion, but normally accepts the advice of the New Zealand government and the guidance of the prime minister. Most governors-general have been eminent Britons, many of them senior officers of the armed services of Britain. Of the first 10 governors-general, only one was a New Zealander.

The governor-general's functions in New Zealand resemble those of the sovereign in Britain. As the personal representative of the head of state, he summons, adjourns, and dissolves parliament. He appoints the prime minister and other ministers and can also dismiss them. He is officially the commander-in-chief of the armed services, and embodies the *executive* (law-enforcing) power of the government. But he acts only on the advice of his ministers, and must choose as prime minister the political leader who has the support of a majority of the members of parliament.

The governor-general has his chief official residence in the capital, Wellington. There, he lives in Government House, a sprawling wooden house in the suburb of Newtown. He usually also spends part of each year at his other official residences, in Auckland and Christchurch. The governor-general receives a salary of over $NZ 33,500 a year, plus an allowance to cover additional costs, such as the wages of his personal staff and entertainment of official guests. He is appointed for a term of five years, a term that is seldom extended. If the governor-general is absent from New Zealand or ill, the chief justice assumes his duties and takes the title of *administrator.*

The Prime Minister

The prime minister has four main functions. He is the political head of the government, the executive who puts government policies into practice, the principal adviser to the head of state, and the leader of one of the major political parties.

As the political head of the government, the prime minister plays a major part in formulating its general policy. He leads his party in parliament, and is the chief spokesman for the government there. He must win the support of his party's members in parliament and retain the support of the other leading members of the party.

As the chief executive of the government, the prime minister chooses senior members of his party to supervise the work of the various departments of government. He has a department of his own, chiefly for co-ordinating the work of the other departments. Usually, he is also political head of the External Affairs Department. He frequently represents New Zealand at conferences with representatives of other countries. He attends conferences of Commonwealth prime ministers, usually held in London.

As the chief adviser to the head of state, the prime minister nominates people for honours or for posts with the government. The governor-general acts on his advice. But the prime minister takes sole responsibility for all matters.

As the leader of his party, the prime minister plays a vital part in directing political affairs outside parliament. He mobilizes public support for his government's policies and is the chief spokesman for them to the public.

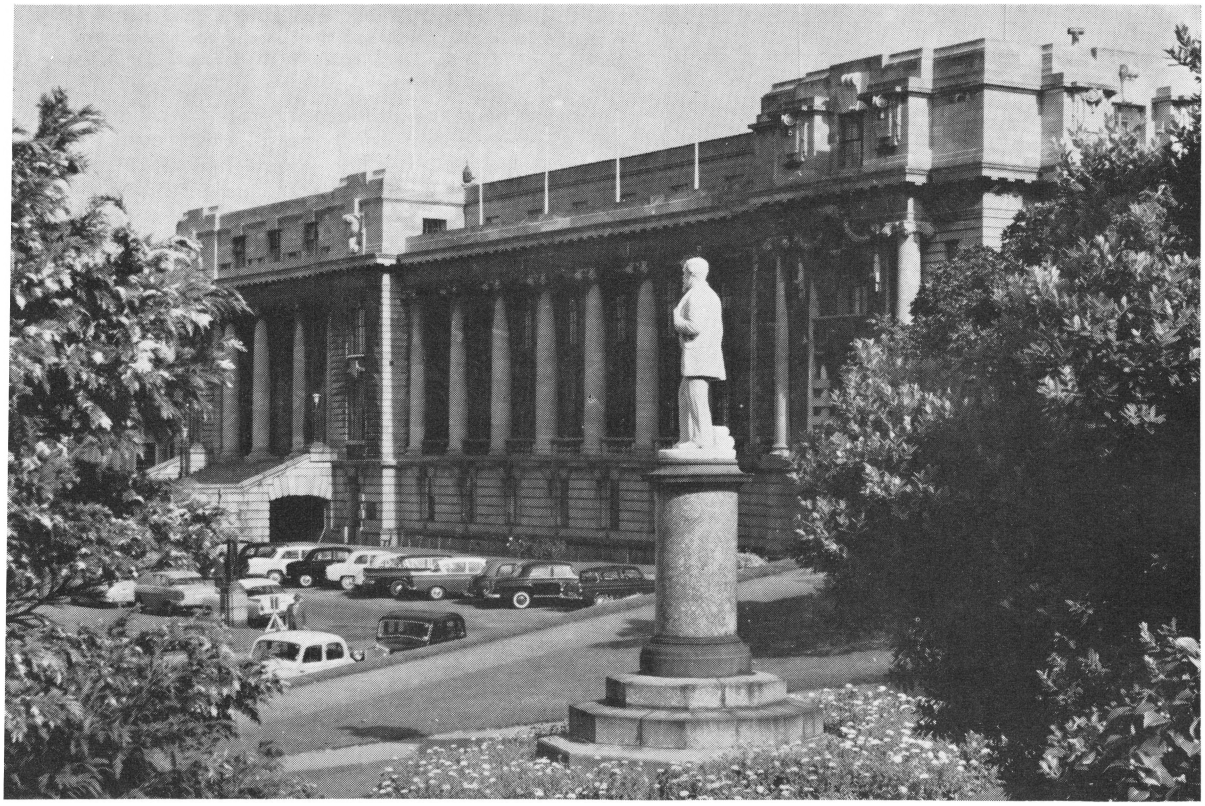
The prime minister receives a salary of more than $NZ 20,000 a year and tax-free general allowances of $NZ 4,000 a year. He also receives special allowances for travel. The government grants him an official residence near Parliament House, in Wellington.

Cabinet Ministers

The governor-general follows the advice of the prime minister in appointing the government's ministers. Normally, ministers must be members of parliament when they are appointed to the government. The prime minister's choice is not merely a matter of personal preference. He must pay attention to political considerations as well as to his desire to get the best man for the job. In some parties, the party members in parliament elect prospective ministers. The prime minister then decides which *portfolios* (posts) he will allot to each minister. In other parties, the leader is much freer in making his choice.

A minister's chief duty is to supervise the work of the department or group of departments to which he is appointed. He is responsible to parliament for his departments and the policies they adopt. For many years, a minister was expected to resign if his department committed a serious error. But, since about 1945, this custom has largely died out. Some ministers have publicly blamed subordinate officers for administrative shortcomings. In practice, most ministers who resign do so because they have lost the confidence of the prime minister or the support of their party.

Some ministers have special duties that do not come within the scope of a particular department, or even of any department. For example, the government has a minister of overseas trade, but no department of overseas trade. The Department of Indus-



New Zealand National Publicity

Parliament House in Wellington, also called Parliament Buildings, is the centre of government in New Zealand. A statue of John Ballance, a noted premier, stands in the grounds of Parliament House.

tries and Commerce handles the work that such a department would do. Frequently, a woman is chosen for the job of minister for the welfare of women and children. This minister also has no separate department. Since the mid-1930s, New Zealand has had a minister of broadcasting. But radio and television broadcasting are run by a separate government corporation that is controlled by a board of directors, not the minister. In these cases, the minister is the government's spokesman whenever his special subject comes up for discussion. Sometimes, junior ministers, known as *parliamentary under-secretaries,* are appointed from members of the majority party to help senior ministers in their work. Each senior minister decides what powers and duties his junior minister will have.

Ministers must take a leading part in debates in parliament. Each minister answers questions in parliament about particular measures and departments for which he is responsible. He is in charge of any legislation that comes within his portfolios. A minister consults senior members of the permanent staff of his department about most administrative and policy matters. He is free to accept or reject their advice. The final decision in such matters must be his own.

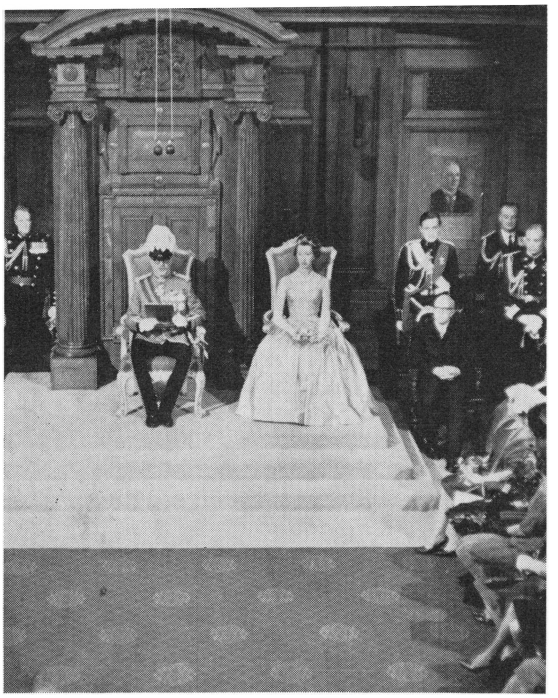
Ministers hold office as long as the government has the support of the majority of members of parliament. If the government loses the support of parliament, the prime minister must resign and his ministers must resign with him. Or the prime minister may ask the governor-general to dissolve parliament and call a general election. By law, a minister must resign within 21 days of ceasing to be a member of parliament.

Ministers receive salaries of more than $NZ 13,000 a year and tax-free allowances totalling $NZ 1,500 a year. A minister who is also appointed deputy prime minister receives a salary of more than $NZ 15,000 a year and tax-free allowances totalling $NZ 1,625 a year. Each minister is also entitled to an official residence or a house allowance.

The Cabinet

The cabinet is the general policy-making body of the government. All ministers are members of the cabinet and attend its meetings regularly. A junior minister may be invited to attend a cabinet meeting. He is usually called in to discuss matters concerning the department he works with, or to give his opinion on topics of which he has special knowledge. If military matters are under discussion, the prime minister may decide to call the chiefs of staff of the country's armed services to the meeting.

Cabinet meetings take the form of confidential and informal discussions in which the government's general policies—as well as some specific matters—are decided. The cabinet receives help from several cabinet committees, each consisting of about six



New Zealand National Publicity

The Opening of Parliament usually takes place once a year. The governor-general reads the Speech from the Throne, announcing the government's legislative programme.

ministers. The Prime Minister's Department supplies a secretariat for the cabinet. The secretariat is headed by the official *secretary to the cabinet,* a highly trusted senior civil servant. He keeps records of cabinet decisions and sees that they are sent to those who put them into effect.

Cabinet ministers meet in Wellington at least once a week, and often more frequently when parliament is sitting. The prime minister or his deputy presides at cabinet meetings. He controls the course of discussion, assesses the general opinion of the meeting, and summarizes it in a *minute* (report) that is written by the secretary to the cabinet.

Departmental officials make their views known to the cabinet by preparing *cabinet papers* on matters for discussion. These papers list facts and arguments both for and against a proposal, and end with a recommendation on what action the cabinet should take. In proposals for actions that would cost money, the cabinet papers also include the views of senior officials from the treasury.

The cabinet makes decisions on all matters of general policy and on many matters of detail, particularly if these specific matters have been widely disputed at lower levels of the government. The cabinet determines all matters of government policy and decides how this policy will be implemented. It does this in three ways—by giving preliminary approval to many bills to be introduced in parliament, by deciding individual policies and courses of action for particular government departments, and by getting the Executive Council to make orders and regulations. But, until parliament passes the bills or the Executive Council confirms cabinet decisions, these decisions have no force as law.

The Executive Council

The Executive Council is the body that gives legal force to the decisions of the cabinet. It consists of the governor-general and all the members of the cabinet. The governor-general usually presides over council meetings, but he leaves the ministers to make its decisions. In his absence, a senior minister presides at its meetings, which are usually held once a week in a special room at Parliament House.

Many acts of parliament contain the expressions "the Governor-General-in-Council may . . ." or "the Governor-General may . . ." In taking action under these acts of parliament, the governor-general gives legal authority to cabinet decisions. Experts have described the role of the council as the *cabinet in formal dress.* Sometimes a single minister puts a matter before the council. In some cases, on the cabinet's advice or a minister's advice, the governor-general exercises his legal powers alone.

Parliament

The *General Assembly* is the official name of New Zealand's parliament. It consists of the governor-general, representing the sovereign, and the House of Representatives. They act together as the supreme law-making body in the country. The governor-general opens each session of parliament. He reads the *Speech from the Throne,* which is written by the prime minister and sets out the government's general policy for that session. He then assents to bills as the House of Representatives passes them. The bills then become acts of parliament and form part of the law of the country.

There is no constitutional limit on the laws that parliament may enact. It may amend any provision of the constitution by a simple majority vote, with one exception. The Electoral Act of 1956 includes provisions for fixing the boundaries of electorates, for determining the length of a term of parliament, and for fixing the minimum age for voting. In passing this act, parliament ruled that these provisions could be altered only if three out of every four members approved, or if a referendum showed that a majority of the people favoured the change. But constitutional lawyers question whether one session of parliament can make rules that are permanently binding on future sessions.

The House of Representatives is the only house of parliament. In it, elected representatives of the people meet to debate important issues, to approve or modify government actions, and to vote on legislation. Their activities receive wide publicity.

Every citizen who has reached the age of 21 has the right to vote for one candidate to represent his *electorate* (voting district). The country is divided into four Maori electorates. In each Maori electorate, Maori voters elect one Maori candidate (see MAORIS [Political Activities] in the other Australasian volume). For non-Maoris, under an act passed in 1965, the South Island is divided into 25 electorates. A census is taken every fifth year, and the number of electorates on the North Island adjusted so that each has roughly the same number of voters as those on the South Island. In 1972, the North

New Zealand National Publicity

The House of Representatives is the only house of New Zealand's parliament. Its members, known as members of parliament, sit at desks arranged around the Speaker's chair.

Island was divided into 58 non-Maori electorates, bringing the total of all electorates to 87.

At general elections, the people elect members to the house for a term of three years. But the prime minister may decide to dissolve parliament before its three-year term has ended. When a member resigns or dies, the people of his electorate are called to vote for a new member at a by-election.

Normally, the house meets each year for one session that lasts from about June until November. But it may meet for a longer session or a second session if it is unable to complete all its business. Members of the house work as a body to deal with its general business. They may meet in regular sessions or, under slightly different rules, as *committees of the whole house,* to consider legislation. Smaller groups known as *select committees* deal with special subjects. From 5 to 10 members, including the minister concerned, serve on each committee. Select committees deal with such matters as defence, education, mining, and Maori affairs.

The government introduces most public bills. The bills then receive a first reading without debate. They are debated after a second reading. Then each clause is discussed in a committee stage. After the third reading debate, members vote. Successful bills go to the governor-general for Royal Assent. They then become acts of parliament and the law of the country.

Members of Parliament must be New Zealand citizens aged 21 or over. In fact, they serve in the House of Representatives. But they are known officially as members of parliament (M.P.s).

An M.P.'s only formal duty is to be *in his place* (in his seat in parliament) regularly to attend sittings of the house. But, in practice, an active member spends much time in his electorate finding out the needs of the people and keeping in touch with party organizations. The people of his electorate expect him to attend many official and informal gatherings in order to meet as many people as possible and understand their views on political and government matters. An important part of his work is to receive anyone from his electorate who has a complaint to be heard or a problem to be solved. He is also expected to help to develop and explain his party's policies, both inside and outside parliament.

All M.P.s, except ministers, junior ministers, and the leader of the opposition, receive salaries of more than $NZ 7,500 a year and allowances.

The Speaker is the chief officer of the House of Representatives. He presides over debates in the house when it is in full session. He is also the political head of the legislative department. The Speaker is himself an M.P. After each general election, the parliament chooses one M.P. as the Speaker. He then formally presents himself to the governor-general and claims the privileges of the House of Representatives. The governor-general confirms the choice of the house and its privileges.

Normally, the Speaker is chosen from the party that has a majority in the house. But he is expected to be impartial in presiding over debates and maintaining order. Generally, he does not vote on issues that come before the house. But he has a casting vote when the numbers of votes for and against a motion are equal. His duties include controlling and administering Parliament House and supervising the officers of the House of Representatives. The Speaker wears a white wig and black robes similar to those worn by the Speaker of the House of Commons in Britain. He receives a salary of more than $NZ 12,000 a year and a Speaker's allowance of $NZ 1,300 a year, in addition to the normal M.P.s' allowances.

The Speaker's deputy is the *Chairman of Committees.* Like the Speaker, he is elected by the members of the house at the beginning of each new term. The chairman presides when the house is *in committee,* using rules that differ from those that apply when it is in full session. He reports to the Speaker on the committee's proceedings when the house resumes sitting.

The Ombudsman is an officer of parliament who investigates complaints that people have been wronged by officials or the government. M.P.s choose him by a vote and the governor-general appoints him. The ombudsman is also known as the *Parliamentary Commissioner for Investigations.*

If the ombudsman finds that an official has been wrong or that the government has applied a law unfairly, he can recommend that such injustices be put right. He reports his recommendations to parliament and to the country's newspapers. These recommendations are usually carried out.

The ombudsman conducts searching investigations, studying all relevant government files and papers. But his procedures of investigation are informal. Normally, each person who makes a complaint to him must pay a fee of $NZ 2. But the ombudsman does not insist on the fee if it would cause a hardship. The ombudsman has a small staff to assist him. He receives a salary of $NZ 8,200 a year. His office is near Parliament House.

Other Parliamentary Officers. Parliament's large clerical staff is headed by the *Clerk of the House of Representatives.* He is also permanent head of the government's legislative department. The prime minister chooses him and the governor-general appoints him. The Clerk of the House must have a good knowledge of the working of the house's rules, especially the rules of debate, and he must know the rulings of successive Speakers on points of parliamentary procedure. He acts as chairman of the house when the Speaker is being elected. He is also responsible for Parliament House services such as *Hansard* (the official report of debates and proceedings), catering arrangements, and preparations for ceremonies. He receives $NZ 7,000 a year.

The *Sergeant-at-Arms* attends the Speaker and guards parliament's mace (see MACE in the main volumes). Under the Speaker's instructions, he enforces order in the house. He controls the duty policemen in Parliament House and its grounds when parliament is sitting. Most Sergeants-at-Arms are retired officers from the armed services. The Sergeant-at-Arms is chosen by the Speaker and appointed by the prime minister. He receives a salary of $NZ 2,200 a year.

The *Gentleman Usher of the Black Rod* plays a leading part in the ceremony of opening parliament. He is often called simply *Black Rod.* Most Black Rods are senior officers from the armed services. The first session of parliament after a general election is always opened by a *commission* consisting of the chief justice and two other judges. At the opening ceremony, Black Rod announces and introduces members of the commission to M.P.s.

The *Law Draftsman* prepares the bills that the government submits to parliament. He must make sure that the bills are *drafted* (organized and expressed) correctly. He is chosen by the prime minister and appointed by the governor-general. The Law Draftsman receives a salary of $NZ 7,000 a year.

Government Departments

To carry on its many tasks, the government must have a large organization of permanent officials. Most of them work for departments under the supervision of cabinet ministers. Others work for *statutory authorities,* such as the New Zealand Broadcasting Corporation, that are largely independent of political control.

Cabinet ministers are the political heads of the departments. Each department also has a permanent head, usually called the *secretary.* Ministers lose office when a government changes. But the permanent heads are professional administrators. They serve as chief advisers to the ministers, adapting the nature of their advice to the individual demands and outlook of each successive minister.

The State Services Commission (SSC), an independent authority, appoints most permanent heads. But the government directly appoints the permanent heads of the Railways Department and the Post Office. Traditionally, the government chooses the best possible man for each of these posts and the choice is not on a political basis. The SSC, formerly the Public Service Commission, controls the general conditions of recruitment, promotion, discipline, retirement and superannuation, and general pay and working conditions of all permanent public servants. Its members each hold office for five years.

Government departments play an important part in the lives of the people. In the mid-1960s, the government had 40 departments and employed about 120,000 people. Most children become aware of the government around them at school. School Dental Service nurses from the Health Department treat their teeth at school dental clinics (see HEALTH SERVICES in this volume). This department is responsible for maintaining standards of public health and supervising New Zealand's national health scheme. School pupils come directly within the scope of the Education Department when inspectors from the department examine their work and the work of their teachers. This department is responsible for maintaining standards of education in the country's schools.

Many students who are about to leave school to begin their first jobs seek the advice of their careers master. The careers masters in turn seek information on employment trends and conditions from the Employment Service of the Department of Labour. This department is responsible for helping unemployed people to get jobs. It also supervises safety standards and conditions of employment in factories. The Department of Labour administers the country's immigration laws (see IMMIGRATION AND EMIGRATION in this volume).

Soon after a student begins his first job, he comes within the scope of the Inland Revenue Department. This department is responsible for collecting income

taxes. Normally, an employer deducts money from wages and salaries and pays it directly to the government.

The work of the Social Security Department affects the lives of most people from the time they are born to the time they die. This department administers the country's social services (see SOCIAL SERVICES in the other Australasian volume). Children come within the scope of this department soon after they are born, when it pays a weekly allowance for each child to the mother. When a person retires from his job at the normal retiring age of 65, the department pays him a pension. The department supervises the payment of many other benefits, such as pensions for invalids and widows.

Many of the departments of government are virtually trading organizations that sell some commodity or service. For example, the Electricity Department sells electric power, the Mines Department sells coal, the State Forest Service sells timber, and the Railways Department, trading as *New Zealand Railways,* operates all the country's railway freight and passenger services. The government operates some of the trading departments, such as the State Insurance Office, at a profit. The eight trading departments together employ about 61,000 people.

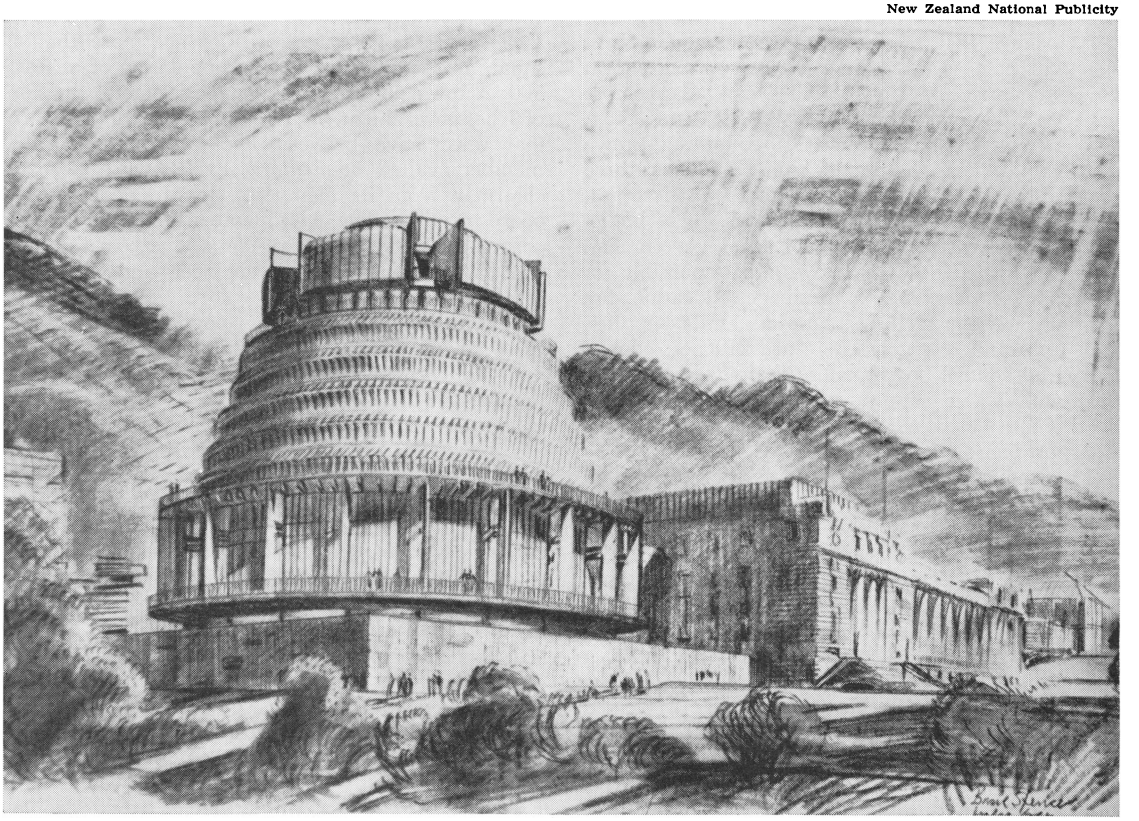
Departments and branches of departments that are responsible for keeping law and order include the Police Department, the Traffic Control Branch of the Transport Department, and the Prisons Service of the Justice Department. These departments employ a total of about 4,000 people. The Customs Department and the Inland Revenue Department, both established to collect the nation's revenue, employ a total of more than 3,000 people. The Ministry of Defence and the armed services, incorporating the air department, army department, and navy department, employ a total of 16,000 people.

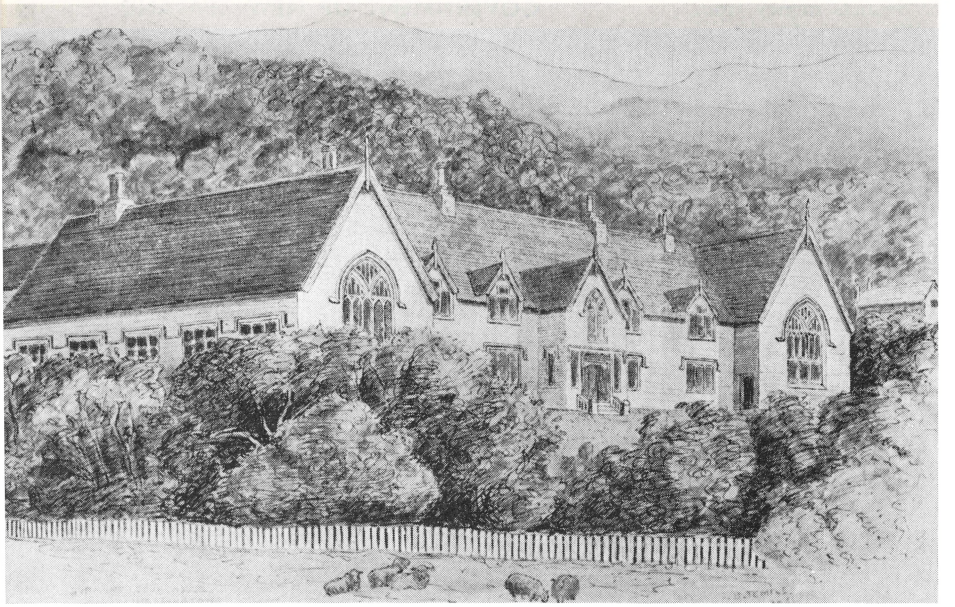
New Zealand's *statutory authorities* are not under the direct control of either the State Services Commission or a minister. Some are completely free of such control. But most are subject to some direction or advice on staff conditions and broad policy. The most important of the statutory authorities include Air New Zealand, Auckland Harbour Bridge Authority, New Zealand Broadcasting Corporation, New Zealand National Airways Corporation, Reserve Bank of New Zealand, and Tourist Hotel Corporation of New Zealand.

Local Government

Since the early 1850s, local government has played an important part in New Zealand's development. But many people now feel that New Zealand has too many separate local authorities—more than 750—for a small country. In 1961, the government set up a

The Beehive is the popular name given to the building designed to replace the wooden south wing of Parliament House. Sir Basil Spence, a leading architect in Britain, designed the new wing.
New Zealand National Publicity





Alexander Turnbull Library, Wellington

The New Zealand Parliament held its first session in Wellington in July, 1865, two months after the seat of government was transferred from Auckland. It met in the Provincial Council Chambers.

permanent Local Government Commission to encourage many local bodies, especially the smaller ones, to amalgamate their staffs and services with other local authorities or into new regional authorities in various areas. For example, in the early 1960s, the Auckland Regional Authority was formed to co-ordinate water supplies, public bus services, drainage, airport services, and town planning. Experts believe that the Local Government Commission will help to streamline the structure of local government so that local bodies can adapt more easily to today's conditions.

The country has more than 110 counties, 20 town districts, 120 boroughs, and 20 cities. It also has three *roads districts* (authorities in remote districts that are equivalent to counties). Together, these bodies form the general framework of local government. But many other local authorities are responsible for particular services, such as drainage, education, fire fighting, harbour facilities, hospitals, milk supplies, and parks and reserves. There are 210 pest control and weed control boards, more than 70 boards that deal with water supply, conservation, rivers, and flood control, 40 electric power boards, and 30 transport boards.

The country's various local authorities are elected every three years, on the second Saturday in October. Normally, all people who have reached the age of 21 have the right to vote in these elections. But, in elections concerning some special issues, a person can vote only if he owns some property.

A County is the rural division of local government and is governed by a county council. Normally, a council governing an area with a population of not more than 20,000 has between 6 and 12 elected members, called *councillors.* Counties with a population of more than 20,000 each have between 6 and 18 councillors. Each county is subdivided into areas called *ridings,* and the people of each riding elect at least one councillor. Each council elects a chairman from its members. He is called the *county chairman* and presides at council meetings. He receives an allowance of not more than $NZ 1,000 a year. The chief member of a county council's permanent staff is the *county clerk.* He supervises the administration staff. Other staff usually includes an engineer and a health inspector.

A Town District is an area of not more than 2 square miles and must have a population of at least 500. A town district is the smallest general division of local government. It is governed by a town board that must have between five and seven elected members called *councillors.* Each board elects a chairman from its members. He presides at town board meetings. The chief member of a town board's permanent staff is the *town clerk.* The board's other staff usually includes an engineer and a health inspector.

A Borough is a town with a population of at least 1,500 and is governed by a borough council. Normally, a borough council governing an area with a population of not more than 30,000 must have between 6 and 12 elected councillors. Each borough has a *mayor,* who is elected by the people. The mayor presides at council meetings. He becomes a justice of the peace (J.P.) by virtue of his office (see JUSTICE OF THE PEACE in the main volumes). The chief member of a borough's permanent staff is the town clerk, and the staff normally includes a treasurer, engineer, and health inspector. Some boroughs also have a medical officer.

A City must have a population of at least 20,000, and a borough usually becomes a city when it has this number of people. A council governing a city of not more than 30,000 people must have between 6 and 12 elected members. Cities of more than 30,000 people must have between 12 and 21 councillors. Each city has a mayor, who is elected by the people.

He presides at council meetings and becomes a J.P. by virtue of his office. A city mayor receives an allowance of up to $NZ 3,000 a year, depending upon the number of people living in his city. The chief member of a city's permanent staff is the town clerk. The staff also includes a treasurer, chief engineer, and solicitor. The various departments of city councils each have a permanent staff.

History

The history of government in New Zealand began in 1832, when James Busby became British resident (see BUSBY, JAMES, in this volume). Seven years later, William Hobson was appointed lieutenant-governor of the country, succeeding Busby. In 1840, after Hobson and the Maoris signed the Treaty of Waitangi, Queen Victoria proclaimed New Zealand a colony. Hobson then set up a government and became the first governor (see HOBSON, WILLIAM, in this volume).

In the 1840s, many people emigrated from Britain to New Zealand. The new settlers soon became dissatisfied with a system of government under which one man held all the powers of government. Their unrest led to the New Zealand Constitution Act, passed by Britain's parliament in 1852. Under this act, Britain granted New Zealand the power to set up its first parliament, called the *General Assembly*. The assembly consisted of the House of Representatives and the Legislative Council. The government divided the country into six *provinces,* each with an elected *provincial council* and an elected *superintendent.* Four more provinces were added later.

Parliament held its first session in 1854, in the capital, Auckland. As soon as the session began, several members of the House of Representatives demanded that Britain grant New Zealand full self-government. They wanted Britain to remove many officials appointed by the Crown and replace them with elected ministers who would be responsible to parliament. Britain authorized the Governor, Sir Thomas Gore Browne, to introduce responsible government in 1856. In Auckland, the Governor soon appointed ministers from among the members of parliament. The chief minister was called the *premier.* He headed the cabinet.

In the 1850s and 1860s, the system of provincial government began breaking down. The people of each provincial district elected both a provincial council and a superintendent for a term of four years. But the governor could reject laws passed by the provincial councils. He could also disallow the election of superintendents, dissolve the councils, and even abolish the office of superintendent. As the number of people in each province increased, so did disputes between the provinces and the central government. Bitter quarrels developed between the *provincialists* (the politicians who favoured provincial government) and the *centralists* (those who favoured abolition of the provinces). The centralists won, and, in 1876, provincial government was abolished. In the meantime, the central government had moved the capital to Wellington, because of the city's central position.

GOVERNMENT OF NEW ZEALAND

In 1867, the government authorized the election of several Maoris to parliament. All men aged 21 or over were given the vote in 1879. Women aged 21 or over were given this right 14 years later.

An important development towards self-government came in 1892, when Britain's parliament agreed that the governor must accept the advice of New Zealand ministers on many matters. In 1907, Britain proclaimed the country a dominion of the British Empire and granted it internal self-government under a governor appointed by the Crown. His title was changed to governor-general in 1917. In 1931, Britain's parliament passed the Statute of Westminster, which gave all British nations that adopted this act complete freedom and independence from Britain. New Zealand moved slowly towards formal acceptance of the act and did not adopt it until 1947.

In 1950, the government introduced a law proposing abolition of the Legislative Council, on the ground that the council was ineffective. The government appointed an additional 20 members to the council to ensure that a majority of them would vote to abolish it. In January, 1951, this abolition measure came into effect.

Aids to Learning

Related Articles in WORLD BOOK include:

MAIN VOLUMES

Ombudsman
Parliament

AUSTRALASIAN VOLUMES

Armed Services of New Zealand
Governors and Governors-General
Health Services
History of New Zealand
International Co-operation
Legal System of New Zealand
Political Parties of New Zealand
Social Services
Taxation
Waitangi, Treaty of

Outline of this article is as follows:

I. **The Governor-General**
II. **The Prime Minister**
III. **Cabinet Ministers**
IV. **The Cabinet**
V. **The Executive Council**
VI. **Parliament**
  A. The House of Representatives
  B. Members of Parliament
  C. The Speaker
  D. The Ombudsman
  E. Other Parliamentary Officers
VII. **Government Departments**
VIII. **Local Government**
  A. A County
  B. A Town District
  C. A Borough
  D. A City
IX. **History**

Books to Read about this topic include:

Angus, N. C. *The Expert and Administration in New Zealand.* Oxford University Press, 1959.

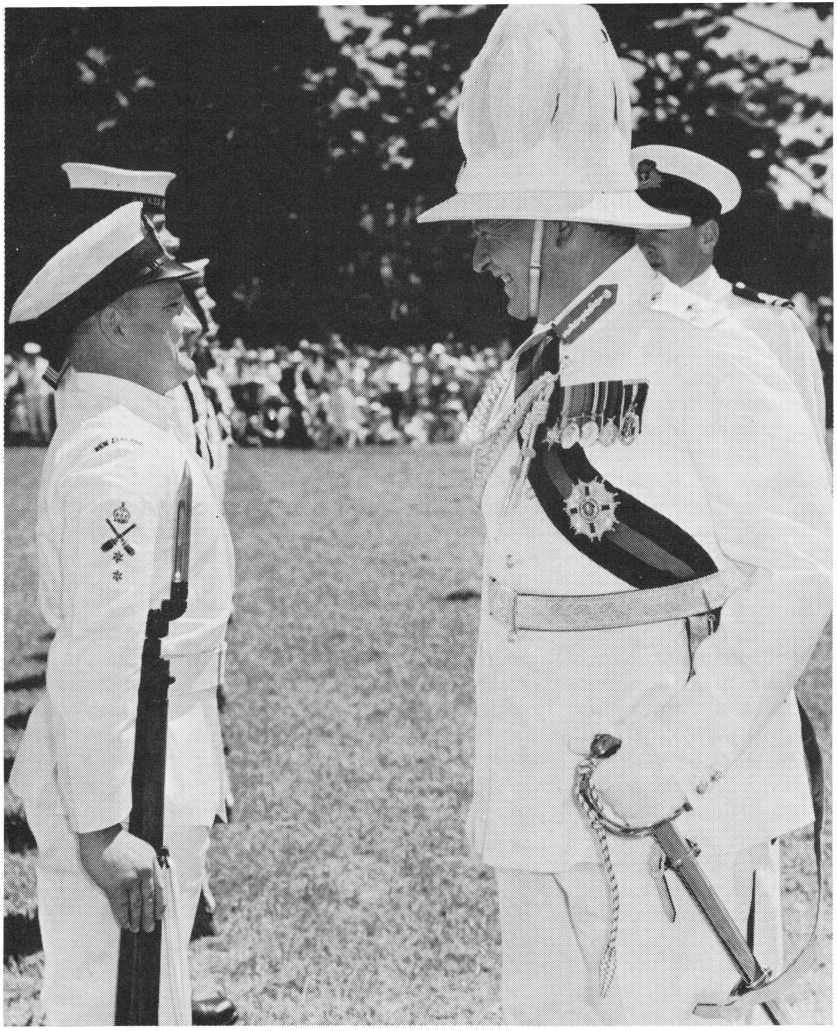
Chapman, R. M. *Ends and Means in New Zealand Politics.* University of Auckland, 1961.

Cleveland, L., and Robinson, A., eds. *Readings in New Zealand Government.* Reed, 1972.

Eagles, J., and James, C. *The Making of a New Zealand Prime Minister.* Cheshire, 1973.

Reed, A. *How New Zealand is Governed.* Reed, 1972.

Scott, K. J. *The New Zealand Constitution.* Oxford University Press, 1962.



Governors-General represent the British Crown on many ceremonial occasions. Lord Cobham, as governor-general of New Zealand, from 1957 to 1962, served as commander-in-chief of the country's armed forces.

Royal New Zealand Navy

GOVERNORS AND GOVERNORS-GENERAL are the representatives of the monarch in Australia and New Zealand. The British monarch is the official head of the Australian federal and state governments and of the New Zealand government. *Governors-general* are the monarch's representatives in the national governments. A *governor* represents the monarch in the government of each Australian state.

Powers. A governor-general or governor has only limited powers, as does the monarch in Britain. His most important duties are concerned with administering the government and parliament. He summons, adjourns, and dissolves parliament, and appoints the prime minister and his ministers. He gives the royal assent to measures passed by the parliament. This action makes the measures law. The governors-general of Australia and New Zealand are the commanders-in-chief of the countries' armed services.

In general, a governor or governor-general may act only on the advice of the government. In appointing a prime minister, he must choose the political leader who has the support of the majority of the members of parliament. He may make his own choice only if no political leader has clear majority support. In addition to their constitutional duties, governors and governors-general represent the monarch on many ceremonial occasions, such as conferring decorations and awards.

Appointment. The British monarch appoints a governor-general on the advice of the government he is to administer. Most governors-general have been prominent Britons, but some Australians and New Zealanders have been appointed, especially since World War II. State governments advise the monarch in choosing governors. On taking office, governors and governors-general swear an oath of allegiance to the monarch. They receive a salary from the state or national government, and have an official residence.

History. In colonial times, the governor of each colony had much greater powers than he has today. At first, he had complete control of a colony. Gradually, as representative self-government became more complete, the governors' powers diminished. Australia's first governor-general took office on Jan. 1, 1901, the day the Commonwealth of Australia came into existence. Until 1917, the monarch's representative in New Zealand was called the *governor.* In 1917, his title was changed to *governor-general,* but his powers and duties remained the same. At various times, *administrators* or *lieutenant-governors* have administered the gov-

ernments during the absence of a governor or governor-general.

See also GOVERNMENT OF AUSTRALIA; GOVERNMENT OF NEW ZEALAND; HISTORY OF AUSTRALIA; and HISTORY OF NEW ZEALAND in this volume.

GOVERNORS-GENERAL OF AUSTRALIA

Name	Took Office
The Earl of Hopetoun§	Jan. 1, 1901
Baron Tennyson	Jan. 9, 1903
Baron Northcote	Jan. 21, 1904
The Earl of Dudley	Sept. 9, 1908
Baron Denman	July 31, 1911
Sir Ronald Craufurd Munro-Ferguson¶	May 18, 1914
Baron Forster of Lepe	Oct. 6, 1920
Baron Stonehaven	Oct. 8, 1925
Sir Isaac Alfred Isaacs*	Jan. 22, 1931
Baron Gowrie▲	Jan. 23, 1936
Prince Henry, Duke of Gloucester	Jan. 30, 1945
Sir William John McKell*	March 11, 1947
Sir William Joseph Slim*★	May 8, 1953
Viscount Dunrossil	Feb. 2, 1960
Viscount De L'Isle	Aug. 3, 1961
Baron Casey*	Sept. 22, 1965
Sir Paul Hasluck	April 30, 1969
Sir John Kerr	July 11, 1974

*Has a biography in the Australasian volumes of WORLD BOOK.
§Later the Marquess of Linlithgow.
¶Later Viscount Novar of Raith.
▲Later the Earl of Gowrie.
★Later Viscount Slim.

GOVERNORS OF NEW ZEALAND

Name	Took Office
As a Dependency of New South Wales	
William Hobson*§	Jan. 30, 1840
As a British Colony	
William Hobson*	May 3, 1841
Robert FitzRoy	Dec. 26, 1843
George Edward Grey‡*★	Nov. 18, 1845
As a Self-Governing Colony	
Sir George Edward Grey*	March 7, 1853
Thomas Gore Browne‡	Sept. 6, 1855
Sir George Edward Grey*	Dec. 4, 1861
Sir George Ferguson Bowen*	Feb. 5, 1868
Sir James Fergusson	June 14, 1873
The Marquess of Normanby*	Jan. 9, 1875
Sir Hercules George Robert Robinson¶	April 17, 1879
Sir Arthur Hamilton Gordon	Nov. 29, 1880
Sir William Francis Drummond Jervois	Jan. 20, 1883
The Earl of Onslow	May 2, 1889
The Earl of Glasgow	June 7, 1892
The Earl of Ranfurly*	Aug. 10, 1897
Baron Plunket*	June 20, 1904
As a Dominion	
Baron Plunket*	Sept. 26, 1907
Baron Islington	June 22, 1910
The Earl of Liverpool	Dec. 19, 1912

*Has a biography in the Australasian volumes of WORLD BOOK.
‡Later knighted.
§Lieutenant-governor.
★From Jan. 1, 1848, to March 7, 1853, governor-in-chief.
¶Later Baron Rosemead.

GOVERNORS AND GOVERNORS-GENERAL

GOVERNORS-GENERAL OF NEW ZEALAND

Name	Took Office
The Earl of Liverpool	June 28, 1917
Viscount Jellicoe¶†	Sept. 27, 1920
Sir Charles Fergusson	Oct. 20, 1924
Viscount Bledisloe*	Dec. 13, 1930
Viscount Galway	April 12, 1935
Baron Newall	Feb. 22, 1941
Baron Freyberg*	June 17, 1946
Sir Charles Willoughby Moke Norrie§*	Dec. 2, 1952
Viscount Cobham	Sept. 5, 1957
Sir Bernard Edward Fergusson	Nov. 9, 1962
Sir Arthur Porritt*	Nov. 27, 1967
Sir Denis Blundell	Sept. 27, 1972

*Has a biography in the Australasian volumes of WORLD BOOK.
†Has a biography in the main volumes of WORLD BOOK.
¶Later Earl Jellicoe.
§Later Baron Norrie.

GOVERNORS OF NEW SOUTH WALES

Name	Took Office
As a British Colony	
Arthur Phillip*	Jan. 26, 1788
John Hunter*	Sept. 11, 1795
Philip Gidley King*	Sept. 28, 1800
William Bligh	Aug. 13, 1806
Lachlan Macquarie*	Jan. 1, 1810
Sir Thomas Makdougall Brisbane*	Dec. 1, 1821
Ralph Darling‡*	Dec. 19, 1825
Sir Richard Bourke*	Dec. 3, 1831
Sir George Gipps*	Feb. 24, 1838
Sir Charles Augustus Fitz Roy	Aug. 3, 1846
Sir William Thomas Denison*	Jan. 20, 1855
As a Self-Governing Colony	
Sir William Thomas Denison*	Dec. 19, 1855
Sir John Young	March 22, 1861
The Earl of Belmore	Jan. 8, 1868
Sir Hercules George Robert Robinson¶	June 3, 1872
Lord Augustus William Frederick Spencer Loftus	Aug. 4, 1879
Baron Carrington	Dec. 12, 1885
The Earl of Jersey	Jan. 15, 1891
Sir Robert William Duff	May 29, 1893
Viscount Hampden	Nov. 22, 1895
Earl Beauchamp	May 18, 1899
As a State of Australia	
Earl Beauchamp	Jan. 1, 1901
Sir Harry Holdsworth Rawson	May 27, 1902
Baron Chelmsford*	May 28, 1909
Sir Gerald Strickland	March 14, 1913
Sir Walter Edward Davidson	Feb. 18, 1918
Sir Dudley Rawson Stratford de Chair	Feb. 28, 1924
Sir Philip Woolcott Game	May 29, 1930
Sir Alexander Gore Arkwright Hore-Ruthven★	Feb. 21, 1935

GOVERNORS AND GOVERNORS-GENERAL

GOVERNORS OF NEW SOUTH WALES (*cont.*)

Name	Took Office
Sir David Murray Anderson	Aug. 6, 1936
Baron Wakehurst	April 8, 1937
Sir John Northcott	Aug. 1, 1946
Sir Eric Winslow Woodward	Aug. 1, 1957
Sir Arthur Roden Cutler*	Jan. 20, 1966

*Has a biography in the Australasian volumes of WORLD BOOK.
‡Later knighted.
¶Later Baron Rosemead.
★Later Baron Gowrie.

GOVERNORS OF QUEENSLAND

Name	Took Office
As a Self-Governing Colony	
Sir George Ferguson Bowen*	Dec. 10, 1859
Samuel Wensley Blackall*	Aug. 14, 1868
The Marquess of Normanby*	Aug. 12, 1871
William Wellington Cairns	Jan. 23, 1875
Sir Arthur Edward Kennedy	July 20, 1877
Sir Anthony Musgrave	Nov. 6, 1883
Sir Henry Wylie Norman	May 1, 1889
Baron Lamington	April 9, 1896
As a State of Australia	
Baron Lamington	Jan. 1, 1901
Sir Herbert Charles Chermside	March 24, 1902
Baron Chelmsford*	Nov. 20, 1905
Sir William MacGregor	Dec. 2, 1909
Sir Hamilton John Goold-Adams	March 15, 1915
Sir Matthew Nathan	Dec. 3, 1920
Sir Thomas Herbert John Chapman Goodwin	June 13, 1927
Sir Leslie Orme Wilson	June 13, 1932
Sir John Dudley Lavarack	Oct. 1, 1946
Sir Henry Abel Smith*	March 18, 1958
Sir Alan Mansfield	March 21, 1966
Sir Colin Hannah	March 21, 1972

*Has a biography in the Australasian volumes of WORLD BOOK.

GOVERNORS OF SOUTH AUSTRALIA

Name	Took Office
As a British Colony	
John Hindmarsh‡*	Dec. 28, 1836
George Gawler*	Oct. 17, 1838
George Edward Grey‡*	May 15, 1841
Frederick Holt Robe	Oct. 25, 1845
Sir Henry Edward Fox Young	Aug. 2, 1848
Sir Richard Graves MacDonnell	June 8, 1855
As a Self-Governing Colony	
Sir Richard Graves MacDonnell	Oct. 24, 1856
Sir Dominick Daly	March 4, 1862
Sir James Fergusson	Feb. 16, 1869
Sir Anthony Musgrave	June 9, 1873
Sir William Francis Drummond Jervois	Oct. 2, 1877
Sir William Cleaver Francis Robinson	Feb. 19, 1883
The Earl of Kintore	April 11, 1889
Sir Thomas Fowell Buxton	Oct. 29, 1895
Baron Tennyson	April 10, 1899

GOVERNORS OF SOUTH AUSTRALIA (*cont.*)

Name	Took Office
As a State of Australia	
Baron Tennyson	Jan. 1, 1901
Sir George Ruthven Le Hunte	July 1, 1903
Sir Day Hort Bosanquet	Feb. 18, 1909
Sir Henry Lionel Galway	April 18, 1914
Sir William Ernest George Archibald Weigall	June 9, 1920
Sir George Tom Molesworth Bridges	Dec. 4, 1922
Sir Alexander Gore Arkwright Hore-Ruthven★	May 14, 1928
Sir Winston Joseph Dugan	July 28, 1934
Sir Charles Malcolm Barclay-Harvey	Aug. 12, 1939
Sir Charles Willoughby Moke Norrie¶*	Dec. 19, 1944
Sir Robert Allingham George	Feb. 23, 1953
Sir Edric Montague Bastyan*	April 4, 1961
Sir James William Harrison	Dec. 4, 1968
Sir Mark Oliphant*	Dec. 1, 1971

*Has a biography in the Australasian volumes of WORLD BOOK.
‡Later knighted.
★Later Baron Gowrie.
¶Later Baron Norrie.

GOVERNORS OF TASMANIA§

Name	Took Office
As a British Colony	
David Collins*	Feb. 16, 1804
Thomas Davey*	Feb. 4, 1813
William Sorell*	April 9, 1817
George Arthur‡*	May 14, 1824
Sir John Franklin†	Jan. 6, 1837
Sir John Eardley-Wilmot	Aug. 21, 1843
Sir William Thomas Denison*	Jan. 26, 1847
Sir Henry Edward Fox Young	Jan. 8, 1855
As a Self-Governing Colony	
Sir Henry Edward Fox Young	Nov. 1, 1856
Thomas Gore Browne‡	June 16, 1868
Charles Du Cane‡	Jan. 15, 1869
Frederick Aloysius Weld‡	Jan. 13, 1875
Sir George Cumine Strahan	Oct. 21, 1881
Sir Robert George Crookshank Hamilton	March 11, 1887
Viscount Gormanston	Aug. 8, 1893
As a State of Australia	
Sir Arthur Elibank Havelock	Nov. 8, 1901
Sir Gerald Strickland	Oct. 28, 1904
Sir Harry Barron	Sept. 29, 1909
Sir William Grey Ellison-Macartney	June 4, 1913
Sir Francis Alexander Newdigate Newdegate	July 6, 1917
Sir William Lamond Allardyce	April 16, 1920
Sir James O'Grady	Dec. 23, 1924
Sir Ernest Clark	Aug. 4, 1933
Sir Hugh Binney	Dec. 24, 1945
Sir Ronald Hibbert Cross	Aug. 23, 1951
Lord Rowallan*	Oct. 21, 1959
Sir Charles Henry Gairdner	Sept. 24, 1963
Sir Edric Montague Bastyan*	Dec. 2, 1968
Sir Stanley Charles Burbury	Dec. 5, 1973

§Lieutenant-governors of Van Diemen's Land until 1855.
*Has a biography in the Australasian volumes of WORLD BOOK.
†Has a biography in the main volumes of WORLD BOOK.
‡Later knighted.

GOVERNORS OF VICTORIA

Name	Took Office
As a British Colony	
Charles Joseph La Trobe*§	July 15, 1851
Sir Charles Hotham*	June 22, 1854
As a Self-Governing Colony	
Sir Charles Hotham*	May 22, 1855
Sir Henry Barkly*	Dec. 26, 1856
Sir Charles Henry Darling	Sept. 11, 1863
Sir John Henry Thomas Manners-Sutton	Aug. 15, 1866
Sir George Ferguson Bowen*	March 31, 1873
The Marquess of Normanby*	April 29, 1879
Sir Henry Brougham Loch★	July 15, 1884
The Earl of Hopetoun	Nov. 28, 1889
Baron Brassey	Oct. 25, 1895
As a State of Australia	
Sir George Sydenham Clarke	Dec. 10, 1901
Sir Reginald Arthur James Talbot	April 25, 1904
Sir Thomas David Gibson Carmichael	July 27, 1908
Sir John Michael Fleetwood Fuller	May 24, 1911
Sir Arthur Lyulph Stanley	Feb. 23, 1914
The Earl of Stradbroke	Feb. 24, 1921
Baron Somers	June 28, 1926
Baron Huntingfield	May 14, 1934
Sir Winston Joseph Dugan¶	July 17, 1939
Sir Reginald Alexander Dallas Brooks*	Oct. 18, 1949
Sir Rohan Delacombe	May 8, 1963
Sir Henry Winneke	June 2, 1974

*Has a biography in the Australasian volumes of WORLD BOOK.
§Lieutenant-governor.
★Later Baron Loch.
¶Later Baron Dugan.

GOVERNORS OF WESTERN AUSTRALIA

Name	Took Office
As a British Colony	
James Stirling‡*	Feb. 6, 1832
John Hutt*	Jan. 3, 1839
Andrew Clarke‡*	Jan. 27, 1846
Frederick Chidley Irwin	Feb. 12, 1847
Charles Fitzgerald	Aug. 12, 1848
Arthur Edward Kennedy‡	July 23, 1855
John Stephen Hampton*	Feb. 28, 1862
Frederick Aloysius Weld‡	Sept. 30, 1869
William Cleaver Francis Robinson‡	Jan. 11, 1875
Sir Harry St. George Ord	Jan. 30, 1878
Sir William Cleaver Francis Robinson	April 10, 1880
Sir Frederick Napier Broome	June 2, 1883
Sir William Cleaver Francis Robinson	Oct. 20, 1890
As a Self-Governing Colony	
Sir William Cleaver Francis Robinson	Oct. 21, 1890
Sir Gerard Smith	Dec. 23, 1895
As a State of Australia	
Sir Arthur Lawley	May 1, 1901
Sir Frederick George Denham Bedford	March 24, 1903
Sir Gerald Strickland	May 31, 1909

GOVERNORS OF WESTERN AUSTRALIA (*cont.*)

Name	Took Office
Sir Harry Barron	March 17, 1913
Sir William Grey Ellison Macartney	April 9, 1917
Sir Francis Alexander Newdigate-Newdegate	April 9, 1920
Sir William Robert Campion	Oct. 28, 1924
Sir James Mitchell¶	Nov. 4, 1948
Sir Charles Henry Gairdner	Nov. 6, 1951
Sir Douglas Anthony Kendrew	Oct. 25, 1963
Hughie Idwal Edwards*	Jan. 7, 1974

*Has a biography in the Australasian volumes of WORLD BOOK.
‡Later knighted.
¶Appointed Lieutenant Governor on July 11, 1933, and administered the government from that date.

GOYDER, G. W. See DARWIN (History) and GOYDER'S LINE in this volume.

GOYDER'S LINE is an imaginary line marking off a huge area of inland South Australia that gets an average of 254 millimetres (10 inches) of rainfall a year or less. It is named after G. W. Goyder, who became surveyor-general for South Australia in the 1850s. He explored the area north of Spencer Gulf.

GRAFTON (pop. 16,354) is a tourist resort and marketing centre in northern New South Wales. Grafton stands on the Clarence River, in the rich Clarence Valley. Farmers in the district raise beef cattle, dairy cattle, and pigs. Fishing is also an important industry. Varieties of hardwoods and pines are used to make timber products. The city has a large meat killing works, a brewery, and a dairy factory. Two co-operative factories in the district process prawns and other fish. The valley offers many coastal tourist resort areas including Yamba and Iluka. Grafton has a sub-tropical climate, with warm humid summers, fine mild winters, and little frost. Rainfall is heaviest between November and March. The city's tourist attractions include the Jacaranda Festival, held in the first week in November, and the Grafton Cup Racing Carnival, held in July.

GRAINGER, PERCY ALDRIDGE. See GRAINGER, PERCY ALDRIDGE, in the main volumes.

GRAMPIANS are a system of mountain ranges in western Victoria, in Australia. They cover an area of about 1,036 square kilometres (400 square miles), and the ridges extend mainly north and south. They consist mainly of sandstone and shale. The Grampians form a catchment area for the Wimmera-Mallee storages. The chief towns are Ararat and Stawell.

For location, see VICTORIA (map) in the other Australasian volume.

GRANNY SMITH is the name of an apple originally cultivated by Maria Ann Smith (? -1870). She was born at Peasmarsh, Surrey, England, and landed in Sydney with her husband Thomas in 1838. They established an orchard and market garden in Eastwood. In 1868, a seedling apple growing on the property was found to have good cooking properties. Mrs. Smith and her family grew and marketed the apples which now bear her name.

GRAPES. See WINE PRODUCTION in the other Australasian volume.

GRASSLANDS. See FLOWERS (Savannahs and Deserts) in this volume.

GREAT ARTESIAN BASIN is the largest artesian basin in Australia. It lies below a large part of Queensland, northern New South Wales, and the north-eastern corner of South Australia. Within its total area of about 1.6 million square kilometres, about 1,500 artesian bores provide regular supplies of water for farming. See ARTESIAN WELL in the main volumes; ARTESIAN WATER in this volume.

GREAT BARRIER ISLAND, the largest island near the coast of the North Island of New Zealand, lies north-east of Auckland and the Coromandel Peninsula. This mountainous island is about 40 kilometres long and up to 16 kilometres wide.

GREAT BARRIER REEF is the largest coral reef in the world. Its thousands of small islands and underwater coral formations stretch along the eastern coast of Queensland and north into Torres Strait. The broad, sandy beaches of the islands and the many varieties of colourful fish among the coral formations attract many tourists. The area is ideal for water sports, especially skin diving. Parts of the reef, especially such islands as Hayman, Lindeman, and Magnetic, are among Australia's most popular tourist resorts.

The Land

Location and Size. The Great Barrier Reef stretches from the area of Gladstone, a coastal town in south-eastern Queensland, north and north-west to a point in the Gulf of Papua opposite Port Moresby. The reef is about 2,000 kilometres long and about 72 kilometres wide, with an area of about 210,000 square kilometres. Parts of the reef are less than 16 kilometres from the coast of Queensland. Other parts lie as much as 240 kilometres out in the Pacific Ocean.

Physical Features. Experts estimate that the reef could be as much as 30 million years old. It was once part of a wide coastal plain between Queensland's eastern ranges and the sea. When the coastal areas sank and were flooded, the eastern ranges became part of the new seacoast. What had been heights along the old coastline became islands. These *continental islands* include Magnetic Island, opposite Townsville, and islands around the Whitsunday Passage, such as Brampton, Hayman, and Lindeman. They differ markedly from the true *coral reef islands,* such as Green Island, off the coast at Cairns. The continental islands are high and rocky, and the coral islands are low and sandy.

The *outer reef,* the main part of the reef, extends in a great arc, enclosing nearly 700 islands. They range from the continental islands behind the southern part of the reef to the coral atolls and *cays* (low islets or reefs) behind the northern part of the reef. There are only 10 well-defined openings in the reef.

Climate of the Great Barrier Reef varies from subtropical conditions and high humidity, in the north, to cooler, more temperate conditions, in the south. The water temperature in the southern tourist-resort areas seldom falls below about 20° C (68° F).

Marine Life

The coral formations grew from the bodies of millions of coral *polyps,* tiny sea animals that protect themselves by forming skeletons of calcium carbonate. After the polyps die, these skeletons harden and become coral. Various kinds of polyps produce various kinds of coral. The Great Barrier Reef contains a total of more than 300 kinds. The most common is *staghorn coral,* which grows branches in a pattern similar to the antlers of a stag. This coral grows in a variety of colours, including blue, brown, green, lavender, pink, purple, red, and yellow.

Hundreds of kinds of fish live and breed in the waters surrounding the reef. They range from starfish, sea urchins, and shellfish to sea eels, sting rays, groupers, Spanish mackerel, marlins, and pike.

Sea turtles are among the most spectacular forms of marine life along the Great Barrier Reef. Each turtle may weigh as much as a man. Female sea turtles go ashore in the summer months to lay their eggs, then crawl back into the sea. Undisturbed eggs hatch in the sun-warmed sand, and the young turtles scamper down to the sea.

Things to See and Do

The chief tourist resorts of the Great Barrier Reef are on the larger central and southern islands. The largest group of islands that have tourist facilities are the Whitsunday Islands. They lie opposite Proserpine, on the central part of the coast. These islands include Hayman, Lindeman, Long, and South Molle. The other tourist-resort islands of the reef are Bedarra, Brampton, Dunk, Green, Heron, Magnetic, Orpheus, and Quoin.

Hayman Island, the most northerly island of the Whitsunday group, is the best-known tourist resort in the reef. It is linked with Proserpine by launch services and with Mackay by helicopter. It has modern hotel accommodation. Sports on Hayman Island include swimming, sailing, and skin diving.

Lindeman Island, at the southern entrance to the Whitsunday Passage, is another of the more popular tourist resorts. The island has modern hotel accommodation and its own airstrip. Light aircraft link it with Mackay. Water ski-ing, catamaran-sailing, fishing, and coral-viewing are the chief attractions.

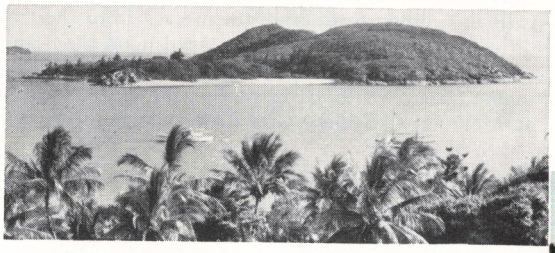
Brampton Island, one of the most picturesque of the Cumberland group, is about 32 kilometres north-east of Mackay. Launch services link it with Mackay. It has modern accommodation similar to a motel.

Green Island, 29 kilometres north-east of Cairns, is the most northerly of the tourist resorts. It is a coral cay and is only 13 hectares in area. But it has many attractions, including the Green Island Underwater Observatory and Marineland, an aquarium of tropical fish.

Magnetic Island, 8 kilometres north-east of Townsville, covers 52 square kilometres and is the largest northern resort island in the reef. Launches link the island with Townsville.

GREAT DIVIDING RANGE runs along the eastern and southern coasts of Australia. It consists of plateaux and low mountains, highest in the Snowy Mountains area but otherwise rarely rising above 1,500 metres. Mt. Kosciusko, the highest, is only 2,230 metres high. From Queensland to Victoria, the range includes the New England Range, the Blue Mountains, the Australian Alps, and the Grampians.

Isabel Bennett

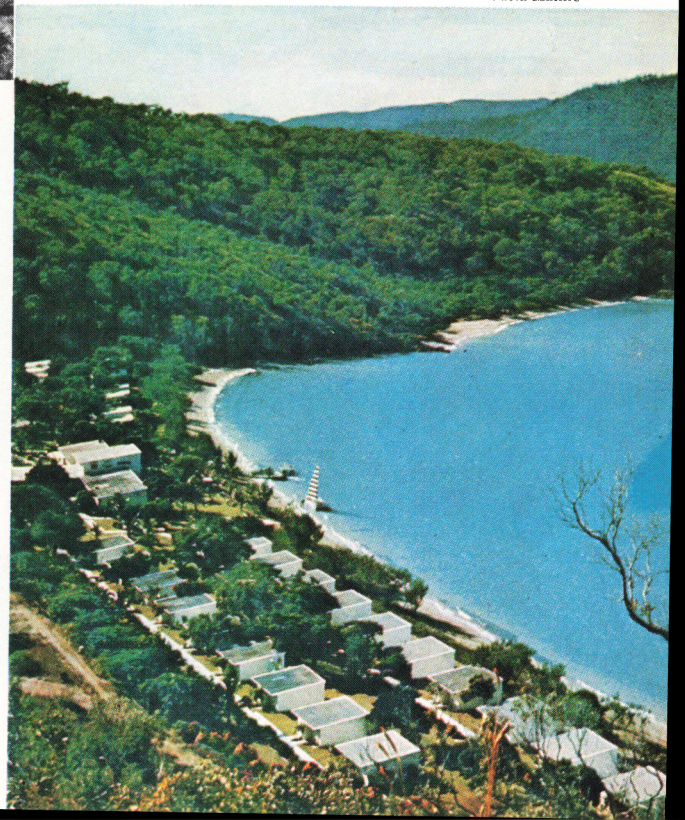


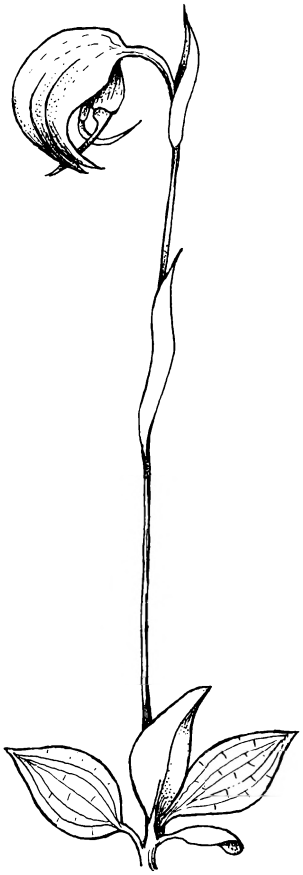
The Great Barrier Reef, the world's largest coral reef, *above,* includes Lindeman Island, *left,* a tourist resort.

Tourists visit many islands of the Great Barrier Reef, including South Molle, *bottom left,* and Hayman, *bottom right.*

Jutta Malnic

Australian News and Information Bureau





A Greenhood

GREAT SANDY DESERT occupies part of the desert basin in northern Western Australia. It stretches inland from the coast between Broome and Port Hedland. Its area is about 1,040 square kilometres. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume.

GREEN ISLAND. See GREAT BARRIER REEF (Things to See and Do) in this volume.

GREENHOODS are small orchids that grow in Australia, New Guinea, New Caledonia, and New Zealand. There are about 60 kinds in Australia. They grow on the ground, with underground tubers. The flowers are green, sometimes tinged brown. The upper sepals and petals join to form a hood over the stamens.

Scientific Classification. Greenhoods are in the orchid family, *Orchidaceae*, and the genus *Pterostylis*.

GREENVALE is the site of a nickel mine 224 kilometres (140 miles) west of Townsville in northern Queensland. The nickel occurs in the ore in both oxide and silicate forms. The ore field extends over about 334 hectares (825 acres) and has a thickness of 9·5 metres (31 feet). Exploratory drilling has defined reserves of about 45 million tonnes containing 1·57 per cent. nickel and 0·11 per cent. cobalt. Geologists made significant discoveries at Greenvale in 1966 in the area which had been mapped by the Bureau of Mineral Resources in 1957. In the early 1970s, work began on building a town at the site of the mine and planning a treatment plant near Townsville. Contracts were drawn up to export nickel to Japan and Europe.

GREENWAY, FRANCIS HOWARD (1777-1837), Australia's first fully qualified architect, planned many fine buildings in and around Sydney. His works include the Macquarie Lighthouse, Fort Macquarie, Victoria Barracks, and the Government House stables, now the Conservatorium of Music. Greenway was transported to Australia in 1814 for forgery. He soon gained a *ticket of leave,* and was eventually pardoned (see TRANSPORTATION in the other Australasian volume). Governor Lachlan Macquarie appointed him civil architect in 1816. Commissioner John T. Bigge regarded his buildings as too expensive, and he was eventually dismissed.

GREER, GERMAINE (1939-), a leading member of the women's liberation movement, wrote *The Female Eunuch* (1970). In this book she discusses critically the subordinate place of women in society. She calls on women to liberate themselves from the traditional roles that society has placed upon them and which she feels have limited their development. Germaine Greer was born in Melbourne and educated at Melbourne, Sydney, and Cambridge universities.

Max Hale; The Mitchell Library

Francis Greenway, who arrived in Australia as a convict, designed many fine Australian buildings, including St. Luke's Church of England at Liverpool.

GREGORY was the family name of two pioneers in Australia.

Sir Augustus Charles Gregory (1819-1905) led four major expeditions of exploration. In 1846, he explored the country north of Perth. In 1848, he explored the country between the Murchison and Gascoyne rivers. In 1855, he journeyed from a base near the present site of Darwin to the source of the Victoria River and then east to Brisbane. In 1857, he searched for traces of the explorer Ludwig Leichhardt in Queensland and New South Wales.

Francis Thomas Gregory (1821-1888), brother of Sir Augustus, led two journeys into Western Australia, in 1857-1858 and in 1861. In 1861, he discovered grazing land inland from present-day Roeburne.

GREGORY, JACK (1895-1973), came from a great Australian cricketing family. He scored 1,146 runs in 24 tests and took 85 wickets for about 31 runs each. His highest test score was 119 runs against South Africa in 1928. His best bowling was 7 wickets for 69 runs against England in 1921.

GREGORY RANGE is an offshoot of the Great Dividing Range in northern Queensland. It forms a watershed between the rivers flowing into the Gulf of Carpentaria and the tributaries of the Burdekin River. For location, see QUEENSLAND (map) in the other Australasian volume.

GREVILLEA is a *genus* (group) of about 250 trees and shrubs almost all of which are Australian. About 130 of them grow in Western Australia. A few grow in New Caledonia and New Guinea. Most of them are colourful shrubs. The leaves vary in shape, but are often harsh or prickly. The flowers are in rounded or toothbrush-like heads in a range of colours. They are often called *spider flowers.*

Scientific Classification. Grevillea belongs to the plant family *Proteaceae.*

GREY, SIR GEORGE (1812-1898), was a British colonial governor. As governor of South Australia from 1841 to 1845, he solved the colony's financial difficulties. As governor of New Zealand from 1845 to 1853 and from 1861 to 1868, he helped to end fighting over land between the Maoris and Europeans. Grey was premier of New Zealand from 1877 to 1879. He was also governor of Cape Colony, South Africa, from 1854 to 1859. He was born at Lisbon, in Portugal.

In 1830, he went to Ireland as a member of the 83rd regiment. In 1836, he left Ireland and, in a letter to the colonial office, offered to lead an expedition to seek a site for settlement in north-western Australia. The offer was accepted and in 1837, Grey's party reached Hanover Bay, near Collier Bay. Grey was injured by hostile Aborigines, but after two weeks continued with the expedition. The party discovered and named the Glenelg River, Stephen Range, and Mount Lyell.

Grey sailed from Perth in Western Australia in early 1839 to explore the country north of Shark Bay. A sudden storm destroyed most of the party's food and boats shortly after their arrival at Bernier Island. Forced to return overland in the heat of summer, the party's meagre food supplies were soon exhausted. For many days the men could find no water. Grey forged ahead, hoping to save the lives of the party. One young man died at Lancelin and was buried there in the sand hills. The rest reached Perth in 20 days, having covered a distance of 640 kilometres (400 miles). Grey had lost so much weight that his friends did not recognize him. But he had noted the rich farming and pastoral country south of the Murchison River, and settlement was extended there in 1850.

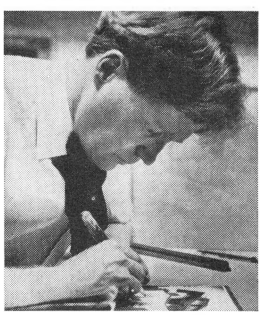
See also HISTORY OF NEW ZEALAND (The Maori Wars) in this volume.

GREY NURSE SHARKS are dangerous enemies to man because of their speed and ferocity. They are large sharks, reaching a length of 3 metres (15 feet). They have grey-brown bodies with white under-surfaces. Their teeth are long, sharp, and great in number. These sharks live off the coasts of all the states of Australia. They are rarely seen in coastal waters, preferring the open sea, where they feed on fish.

Scientific Classification. Grey nurse sharks belong to the family *Carchariidae.* They are genus *Carcharias,* species *C. arenarius.*

GREY RANGE is a line of hills in south-west Queensland and north-west New South Wales. It extends from the Gowan Range to the Barrier Range, and acts as a watershed between streams that flow into the Murray and Darling rivers and the rivers flowing into Lake Eyre. For location, see QUEENSLAND (map) in the other Australasian volume.

GRIFFIN, WALTER BURLEY (1876-1937), an American architect, gained world-wide recognition as a town planner with his design for Canberra. In 1911, his plans won an international competition sponsored by the Australian government. Griffin settled in Australia and became director of the board controlling Canberra's development. He resigned in 1921, after many disputes, but not before completing his plan for Canberra. His designs include the Capitol Theatre, in Melbourne, the Newman College at Melbourne University, and the Sydney suburb of Castlecrag. He was educated at the University of Illinois. See also CANBERRA in this volume.



Australian News

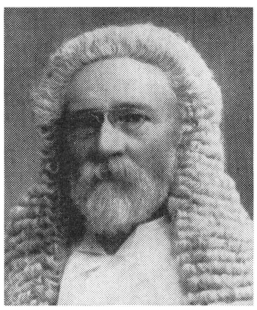
Walter Burley Griffin

GRIFFITH (pop. 11,015) is a town in central southern New South Wales, within the Murrumbidgee Irrigation Area. For location, see NEW SOUTH WALES (map) in the other Australasian volume.

Farmers grow their main crops under irrigation, including rice, cotton, citrus fruits, and wine and table grapes. They also raise fat lambs. Most of the secondary industries are closely allied with the crops grown in the irrigation area. They produce wine, mill rice, and process dried fruit. Tourist attractions include visits to wineries and a reconstruction of a pioneer village. The town was designed by the American architect Walter Burley Griffin. It was

proclaimed in 1916. It was named after Arthur Griffith, the minister for public works who opened the Burrinjuck Dam in 1912.

GRIFFITH, SIR SAMUEL WALKER (1845-1920), was twice premier of Queensland between 1883 and 1893. He was also the first chief justice of the High Court of Australia, serving from 1903 to 1918. As premier, he passed an act forbidding the recruitment of kanakas as labourers for sugar plantations. During the depression of the 1890s, he was forced to allow kanaka labour for a further 10 years (see KANAKAS in this volume). He was born at Merthyr Tydfil, in Wales. He went to Australia in 1854. In 1871, he entered the Queensland parliament.



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Sir Samuel Griffith

Griffith resolutely supported federation. In 1883, he attended a conference in Sydney. The conference, called by Victorian politicians, gave the colonies a chance to discuss federation. Also, the activities of France and Germany in the Pacific Islands and New Guinea posed a threat to Australia. When foreign and defence policies had been agreed to, Griffith opened debate for a federal council and drafted bills for its constitution. The council was a legislative body, and lacked executive powers. It met intermittently, with an equal number of delegates from each colony. The council met from 1886 to 1898, but not annually. As premier in 1891, Griffith attended that year.

Sir Henry Parkes called a constitutional convention in 1891. Seven delegates from each colony, including New Zealand and Fiji, met to discuss political federation. The delegates elected Griffith vice-president of the convention. He acted upon four principles for federation set out by Parkes and set the practical tone for the subsequent debate. After a month's debate, he supervised a private committee that drafted a constitution bill for a federated Australia.

The 1897 constitutional convention at Adelaide debated Griffith's draft bill. As Queensland's Chief Justice, Griffith could not take any open part in the conference. But he gave much advice and swayed British politicians to favor federation.

GRIMMETT, CLARRIE (1891-), was one of the best spin bowlers to represent Australia. He was born at Dunedin, in New Zealand, and was named CLARENCE VICTOR GRIMMETT. He played in 37 test matches, taking a total of 216 wickets at an average of 24·21 runs for each. His best bowling performance was 7 wickets for 40 runs, against South Africa in 1936. In this test series, he took a record 44 wickets.

GROOTE EYLANDT is an island in the Gulf of Carpentaria. It is about 64 kilometres long and 48 kilometres wide. It has a number of well-wooded hills, including Central Hill, which rises to a height of 183 metres above sea level. The island is an Aboriginal reserve. It has two mission stations. The Church Missionary Society runs one station. Manganese ore is mined on the island.

The name means *big island* in Dutch, and was given by Abel Tasman (1603-1659), the Dutch navigator as he passed between the Australian mainland and Groote Eylandt in his voyage of 1644.

GROSE, FRANCIS (1758?-1814), a British soldier, was appointed lieutenant-governor of New South Wales and commandant of the New South Wales Corps in 1789. After Governor Phillip left Sydney in 1792, Grose controlled the settlement for two years. He granted land to the officers and persuaded them to work their land with convict labour. He also allowed them to pay their convict labourers in rum. In addition, he encouraged officers to engage in private trading. He retired because of ill-health and left the colony in 1794. He was born in England.

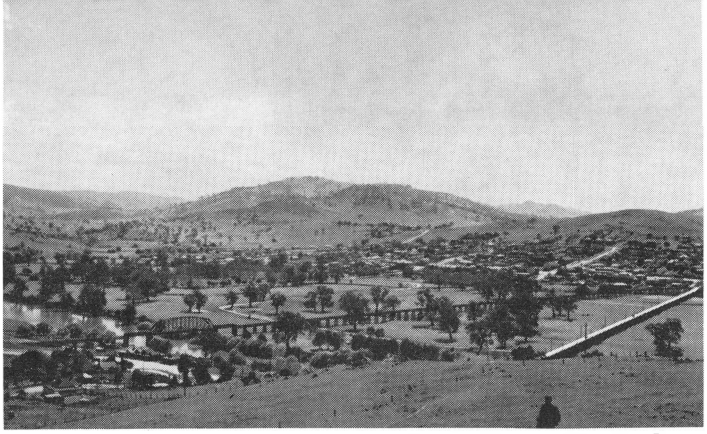
GROUNDS, SIR ROY (1905-), a prominent Australian architect, was awarded the Royal Australian Institute of Architects Gold Medal in 1968. His architectural firm designed the Melbourne Cultural Centre, and the tower block for the Wrest Point Hotel and its casino, at Hobart in Tasmania. ROY BURMAN GROUNDS was born in Melbourne and educated at Melbourne Church of England Grammar School, and Melbourne University.

GROUT, WALLY (1927-1968), an Australian cricketer, set wicket-keeping records for Queensland and Australia, and several world records. During 1960 and 1961, he dismissed 23 West Indian batsmen by catching 20 and stumping 3, to equal the world records for a series. In 1958 and 1959, he set a record for an Australian wicket-keeper in a series against England by dismissing 21 batsmen—catching 20 and stumping 1. In 1960, against Pakistan, he dismissed 8 batsmen in one innings. He repeated this feat against England in 1961. In 40 test match innings, he scored 593 runs at an average of 18·53 runs an innings. He was born at Mackay, in Queensland, and named ARTHUR THEODORE WALLACE GROUT.

GULF OF CARPENTARIA is an arm of the Arafura Sea that stretches into northern Australia. It is about 480 kilometres (300 miles) wide and 640 kilometres (400 miles) long. The waters are shallow for the most part. Mud flats and mangrove swamps lie along its shores.

GULF SAINT VINCENT is an inlet of the Indian Ocean that stretches for 144 kilometres (90 miles) into South Australia. Port Adelaide stands on its eastern shore. For location, see South Australia (map) in the other Australasian volume.

GULGONG (pop. 1,486), is a town on the central tablelands of New South Wales. Gold was discovered near the present site of the town in 1870. The gold rush continued into the 1880s. The Gulgong Pioneer's Museum preserves many historical objects associated with the gold rush. Herbert Street and Mayne Street still retain much of the character and some historic buildings of the pioneering days. Today Gulgong is the centre of a rich pastoral and agricultural district. Kaolin is milled in the town and large quantities are shipped to various processors.



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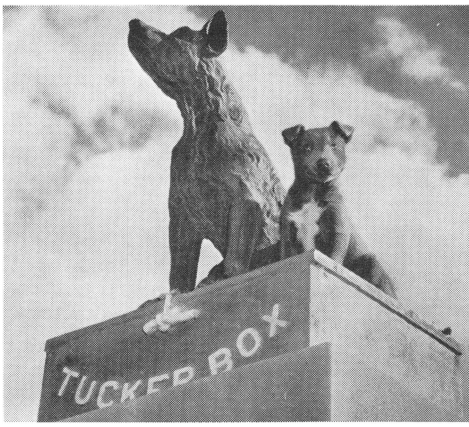


Gundagai, ***above,*** **and its monument,** ***The Dog on the Tucker Box, right,*** **have been the subjects for poems, and songs such as "Along the Road to Gundagai".**

GUM TREES is the popular name used in Australia for eucalypts, especially ones with smooth bark. There are more than 600 *species* (kinds) of eucalypts. See EUCALYPTS in this volume.

GUNDAGAI (pop. 4,175) is a town in southeastern New South Wales. It stands on the Murrumbidgee River, about 160 kilometres (100 miles) north-west of Canberra, in a fertile pastoral and agricultural area. The town is noted for a monument to *The Dog on the Tucker Box,* which stands on the Hume Highway, about 8 kilometres (5 miles) outside the town (see DOG ON THE TUCKER BOX in this volume). The song "Along the Road to Gundagai" has made the town widely known. Gundagai was settled in the 1830s.

GUNN, MRS. AENEAS (1870-1961), was an Australian writer who became famous for her novels based on her life and experience in the Northern Territory during the early 1900s. Her best-known books are *We of the Never-Never,* published in 1908, and *The Little Black Princess,* published in 1905. *We of the Never-Never* is a novel set in the Northern Territory before most people had easy access to the interior of Australia. *The Little Black Princess* is the story of an Aboriginal girl, Bett-Bett. Mrs. Gunn was born in Melbourne, and named JEANNIE TAYLOR. See also LITERATURE OF AUSTRALIA (Country Novelists) in this volume.

The Mitchell Library

Mrs. Aeneas Gunn

GUNN, SIR WILLIAM (1914-), an Australian grazier, was chairman of the International Wool Secretariat from 1961 to 1971. During his term of office, Gunn encouraged world-wide sales promotion and research to help wool to meet competition from artificial fibres. WILLIAM ARCHER GUNN was born at Kildonan, Goondiwindi, in southern Queensland, and educated at The King's School, Parramatta. He was president of the Graziers' Federal Council from 1951 to 1954 and chairman of the Australian Woolgrowers' Council from 1955 to 1958.

GUNPOWDER (pop. 314) is about 130 kilometres (80 miles) north of Mount Isa in Queensland. A mining company began developing the township in 1969 to house employees at the Mammoth mine, 6 kilometres (4 miles) away. Ore from the mine is processed to produce copper concentrates for export. Gunpowder was so named because of an incident in which several Aborigines were shot.

GUNSYND, known as the *Goondiwindi Grey,* was one of the most popular horses ever to race in Australia. He was bought by a group of businessmen from Goondiwindi in Queensland for $A 1,300. He ended his racing career as the leading stake winner in Australia with a total of $A 280,455. He had 54 starts for 29 wins, 7 seconds, 8 thirds, and 6 fourths. He was third in 1972 Melbourne Cup. He was trained in Brisbane earlier in his career but all his important wins were after being taken over by the Randwick trainer Tom Smith in 1971. At the end of his racing career, a syndicate paid $A 270,000 for him.

GUNYA is an Aboriginal word for a temporary hut or windbreak. It is also spelled *gunyah.* European settlers in New South Wales used the term from an early date, and it probably came from one of the dialects of the Sydney region. Usually a rough framework of cane or saplings covered with branches was quite adequate for shelter for the Aborigines, continually moving in search of food. In other parts of the continent, a temporary hut was called a *humpy,* a *maia-maia* or *mia mia,* or a *wurley.*

GURINDJI is the name of an Aboriginal tribe in the Northern Territory. After European settlement of the region, the Gurindji became centred on Wave Hill station, a huge cattle property founded in 1883. The Gurindji men were employed as stockmen and general helpers, while the women assisted with domestic duties. During the 1960s, dissatisfaction with wages and working conditions led the Gurindji to establish a camp of their own on Wattie Creek, some distance from the Wave Hill head station.

GYMPIE (pop. 11,131) is a city in Queensland. It is 185 kilometres (115 miles) by road north of Brisbane. Gympie stands on the upper reaches of the Mary River, and is the centre of one of the richest dairy-farming and fruit-growing districts in Queensland. James Nash, a prospector, discovered gold in the area in 1867.

HAAST PASS is the lowest and most southerly of the passes across the Southern Alps in the South Island of New Zealand. It is 563 metres (1,847 feet) above sea level. It is named after Sir Julius von Haast, the first explorer to cross the pass from the eastern side.

HACKETT is the family name of two outstanding Australians, father and son.

Sir John Winthrop Hackett (1848-1916), a journalist and philanthropist, owned *The West Australian.* As editor and managing director of this newspaper, he exerted much influence over politics and public affairs in Western Australia. In 1913, he became the first chancellor of the University of Western Australia. He was born in Ireland.

Sir John Winthrop Hackett (1910-) began a distinguished career in the British army in 1931. During World War II, he commanded forces in Syria, Italy, and The Netherlands. In 1963, he was appointed deputy chief of the British general staff. In 1966, he became commander-in-chief of the British army in Germany. He was born in Perth, and was educated at Oxford University.

HAKA is a Maori war-dance. The Maoris used the haka for several purposes. It frightened the enemy, raised the warriors to battle frenzy, and was a test by which a man's discipline and speed of reaction could be judged. In the performance of a haka the Maori men stamp, leap, and gesture with their hands. Sometimes they brandish their clubs or spears as they shout the words. See also MAORIS in the other Australasian volume.

HAKEAS belong to a *genus* (group) of 130 to 140 trees and shrubs that grow naturally only in Australia. About half of them grow only in Western Australia, mostly in the south-western part of the state. They are closely related to grevilleas. But the seed pod of the hakea is hard and woody, with two winged seeds, while grevilleas have leathery seed pods. The leaves are usually stiff and hard. The flowers are in rounded or elongated heads. Many hakeas are grown in gardens. After a brushfire, hakea seeds may germinate and form dense thickets. The Aborigines used the fleshy root of one variety of hakea as a substitute for water.

Scientific Classification. Hakeas belong to the family *Proteaceae*, and form the genus *Hakea.*

See also FLOWERS in this volume.

HALBERG, MURRAY (1933-), a New Zealand athlete, established several world track records. In the early 1960s, he established world record times for the three-mile (4,800-metre) and 5,000-metre events. In 1960, at Rome, he won the 5,000-metre event at the Olympic Games. In 1962, at Perth, he won the three-mile event at the Empire and Commonwealth Games. For some time, he also held the world record time for the two-mile (3,200-metre) event, and was co-holder of the world record for the 4 x 1-mile (1,600 metre) relay event. Halberg was born at Eketahuna, in the Wairarapa district.

HALL, BEN (1837-1865), an Australian bushranger, became an almost legendary figure because of his daring and his reputation for chivalry towards the people he robbed. He was the hero of several bush ballads of his time. Hall was born at Breeza, in central New South Wales. Unlike most bushrangers, he was comparatively well established on a cattle station at Grenfell, New South Wales, before beginning his career of crime.

Hall joined Frank Gardiner, a famous bushranger, to rob gold diggers at Lambing Flat, near the present site of Young, New South Wales. He was a member of the gang that held up the Forbes gold escort at Eugowra. Gardiner resigned soon after this hold-up and Hall became the leader. He reduced the gang to five and began a three-year reign of terror. During this time, he is reported to have committed 10 mail robberies, 20 raids on settlers' homes, and several hold-ups of towns.

Hall repeatedly inflicted vicious humiliations on the troopers he captured. There is no direct evidence that Hall committed murder himself. But he did take part in the killing of Sergeant Parry on Nov. 16, 1864, and the cold-blooded shooting of Constable Nelson at Collector on Jan. 26, 1865. This shocking crime finally destroyed all romantic stories of Ben Hall's gallantry. A few months later, on May 6, 1865, Hall was shot dead by a former friend, Billy Dargin, at Billabong Creek, near Forbes.

HALLSTROM, SIR EDWARD (1886-1970), an Australian manufacturer, became famous as a benefactor of institutions throughout Australia. He provided funds for the Hallstrom Institute of Cardiology at the Royal Prince Alfred Hospital, in Sydney, the Hallstrom Cancer Research and Treatment Clinic of Sydney Hospital, and the Royal Zoological Society. He was born at Coonamble, in New South Wales. In 1952, he was made chairman of the Taronga Zoological Park Trust, in Sydney.

HAMENGKU BUWONO (1912-), the Sultan of Jogjakarta, was appointed fourth vice-premier in the Indonesian government in 1966. He also held the position of minister of state in charge of economic, financial, and industrial affairs.

HAMER, RUPERT JAMES (1916-), a solicitor, became premier of Victoria in 1972. He was born at Kew in Victoria and educated at Melbourne Grammar School and Geelong Grammar School. He attended Melbourne University. He served overseas with the Australian army during World War II. He was a member of the Victorian Legislative Council for East Yarra from 1958 to 1971. He served as minister for immigration from 1962 to 1964 and minister for local government from 1964 to 1971.

HAMERSLEY RANGE, in the north-western part of Western Australia, is one of the richest mineral areas in the world. It contains large deposits of asbestos, copper, iron, manganese, and tin. For location, see AUSTRALIA (colour maps) in this volume. See also MOUNT TOM PRICE in the other Australasian volume.

Hamersley Range, in Western Australia, contains rich deposits of asbestos, manganese, copper, and tin. In addition, deposits of iron equal to one-tenth of the world's known resources have been discovered in the area.

Australian News and Information Bureau

HAMILTON (pop. 9,662) is a major road and rail centre on the Grangeburn River in the southwest of western Victoria. It is the commercial centre of the surrounding agricultural district. The main primary industries include dairying and sheep, cattle, and pig raising. Secondary industries within the city include cordial and butter factories, rabbit and poultry freezing works, plaster sheet factories, sawmills, corporation saleyards, municipal abattoirs and chilling chambers, in addition to tool and twist-drill factories and a gas works.

The town was originally called The Grange, which was the name given to the river by the explorer Sir Thomas Mitchell in 1836. The town was proclaimed on Feb. 25, 1861. It was proclaimed a municipal city on Nov. 22, 1949.

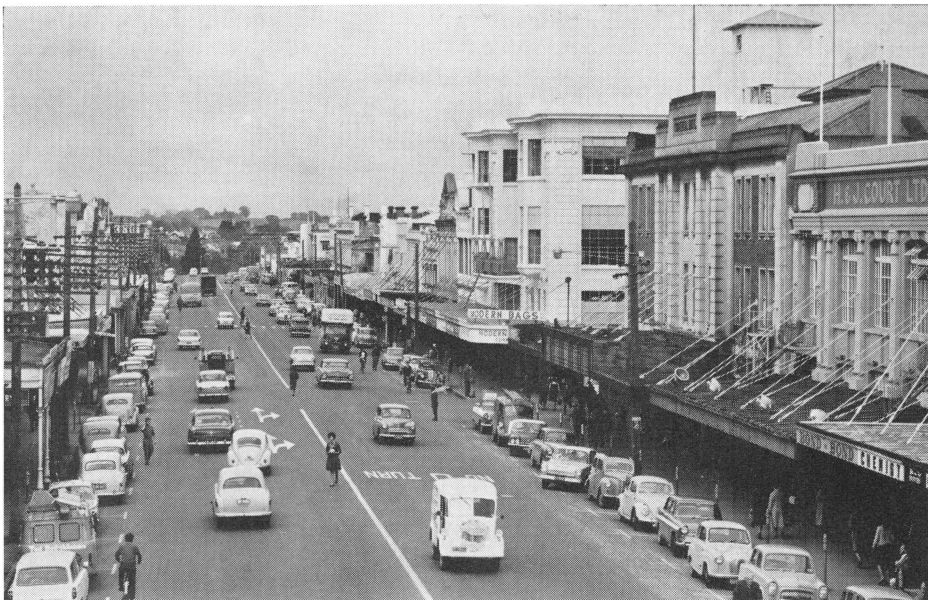
HAMILTON (pop. 80,812) is a city in the North Island of New Zealand. The city is built on both sides of the Waikato River. Five road and rail bridges cross the river.

The centre of the rich Waikato farming district, Hamilton is the most important inland distributing point for primary products in New Zealand. In 1970, the largest railway marshalling yards in New Zealand began operating at Te Rapa. They cover 32 hectares (80 acres). Lake Rotoroa provides facilities for yachtsmen and the Waikato River is used for water sports. The show grounds at Claudelands provide facilities for agricultural and pastoral shows.

Victoria Street is the main business centre. Hamilton has a cathedral, a museum, a public library, an art gallery, a theatre, and the large Waikato hospital. The University of Waikato and Hamilton Teachers' Training College are located on adjoining sites on the outskirts of the city.

Hamilton was named in honour of John Hamilton, a British naval officer. He was among those killed in the battle against the Maoris at Gate Pa, near Tauranga.

New Zealand National Publicity



Hamilton is a flourishing market centre for farmers in the Waikato district in the North Island of New Zealand. The city is attractively laid out on both sides of the Waikato River, and is surrounded by parks.

HAMMOND, DAME JOAN (1912-), a New Zealand-born soprano, became famous as an opera singer and concert artist. She spent her early years in Australia and won many golf championships. She studied singing in Europe, making her concert debut in London in 1938 and her operatic debut in Vienna in 1939. She drove ambulances in World War II. In 1946 and 1949, she toured Australia as a concert artist. Joan Hammond was born at Christchurch.

HAMPTON, JOHN STEPHEN (1809-1869), was governor of Western Australia from 1862 to 1868. In 1849, the British government made Western Australia a penal colony. The colonists in the region wanted convicts from Britain as a source of cheap labour. Between 1850 and 1868, the colony received about 10,000 convicts. The government appointed Hampton governor because he had worked with convicts in Tasmania. Hampton was born in Britain. He joined the British navy as a surgeon, and visited Van Diemen's Land (now Tasmania) in 1843.

HAN SUYIN (1917-), a Malaysian doctor, won fame as an author in the 1950s for her novels written in English. Her best-known works include *Destination Chungking* (1942), *A Many Splendoured Thing* (1952), and *And the Rain My Drink* (1956). They are set in China or Malaya, and describe life during political and social upheavals. Han Suyin was born in Peking, in China, the daughter of a Chinese father and a Belgian mother.

HANCOCK, LANG (1909-), a Western Australian prospector and pastoralist, pioneered aerial prospecting in Australia. In 1952, he discovered from the air one of the world's richest deposits of iron ore in the Hamersley Ranges of Western Australia. LANGLEY GEORGE HANCOCK was born in Perth and educated at Hale School. In 1935 he formed a partnership with E. A. Wright, an accountant and businessman. Hancock and Wright expanded their mining activities rapidly after the embargo on exporting iron ore was relaxed in 1960. They formed Hamersley Iron with the British mining company Rio Tinto. Hancock championed the revival of the movement to have Western Australia break away from the rest of Australia to become an independent country.

HANDBALL is a game of Irish origin that is played mainly by pupils or former pupils of Roman Catholic schools in Australia. In New Zealand, only Roman Catholic secondary school pupils play the game. Players in both countries use the Irish rules. They use a small, hard-skinned rubber ball. They play on open-air courts with only front and side walls. They hit the ball with their bare hands. See HANDBALL in the main volumes.

The Australian Handball Council, formed in 1928, is the ruling body in Australia. About 1,000 players are registered with associations in New South Wales, Victoria, and South Australia.

Many players compete in state and national championships each year. Tim Tucker won four national singles titles between 1935 and 1940. George Macris won three national singles titles between 1949 and 1953. Paul Fallon won many national singles titles after 1952. A team represented Australia in the world series in New York in 1965.

Irish immigrants introduced the game to Australia. Michael Lynch, a hotel-keeper, opened the first Australian handball court in Melbourne in 1847.

HANG TUAH was the most famous of the *laksamana* (admirals) who established the sultanate of Malacca as a great power during the 1400s. He is a traditional Malay folk hero, admired for his courage, enterprise, and unswerving loyalty to his ruler. The Malay epic *Hikayat Hang Tuah,* written in the 1600s, describes many of his exploits. But the real facts of Hang Tuah's life are shrouded in legend.

HANGI. See MAORIS (Cooking) in the other Australasian volume.

HANNAN, PADDY (1843-1925), a prospector, accidentally discovered some gold nuggets about 50 miles north-east of Coolgardie, in 1893. Prospectors rushed to the new goldfield, which became the site of the town of Kalgoorlie. PATRICK HANNAN was born in Quin, County Clare, Ireland. He emigrated to Melbourne in 1863.

HARGRAVE, LAWRENCE (1850-1915), a pioneer in aviation, conducted many experiments into the principles of flight. His work in Australia laid the foundation for the development of modern aircraft. When he began his research in the 1880s, most people believed that it was impossible for machines to fly through the air.

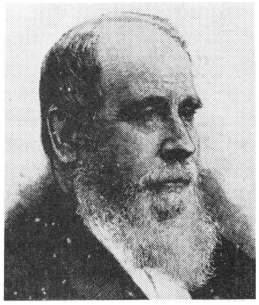
He built many models, usually of a small size and of simple construction. At first, he concentrated on designing and testing model aeroplanes that were propelled by flapping wings. In 1890, he constructed a flapping-wing model driven by compressed air that flew 368 feet.

In 1893, Hargrave became interested in the way birds are sometimes lifted off the ground by the motion of the air above their wings. He experimented with kites, and discovered that a kite with a curved, convex upper surface pulled twice as hard as one with flat surfaces. He went on to construct box kites, and at Stanwell Park, in New South Wales, in 1894, four box kites lifted him 16 feet above the ground.

Hargrave also experimented with various methods of propelling aircraft. He built models powered by elastic bands, clockwork, compressed air, steam, and internal combustion engines. He invented a rotary engine driven by compressed air and later by steam. Similar engines driven by petrol powered many early aeroplanes.

Hargrave was born at Greenwich, near London, and was educated at Queen Elizabeth's Grammar School at Kirkby Lonsdale, in Westmorland. In 1866, he emigrated to Australia, and worked as an engineer with a shipping company. In the 1870s, he joined a series of expeditions to New Guinea. In 1877, he was elected a member of the Royal Society of New South Wales. In 1879, he became an assistant astronomical observer at the Sydney Observatory. Five years later, he resigned from this post to devote himself to research into the principles of aeronautics. Hargrave's work was not all concerned with flight. He also experimented with such things as water skis and hydroplanes.

HARGRAVES, EDWARD HAMMOND (1816-1891), was one of the first people to discover gold in Australia. His discoveries caused a gold rush and attracted thousands of new settlers to the country.



The Mitchell Library

Edward Hargraves

Hargraves was born at Gosport, in Britain, and was educated at Brighton Grammar School. He settled in New South Wales in 1832 and worked as a grazier for many years. In 1849, he decided to join the gold rush to California. He had little success in the United States, but he noticed a similarity between the California gold country and land near Bathurst, in New South Wales.

After returning to Sydney in 1851, Hargraves hired a young guide, John Lister. He set out to look for the junction of two streams with rock formations similar to those of the Sacramento and San Joaquin valleys in California. He found what he was looking for at the junction of Lewis Ponds and Summerhill Creeks in the Bathurst district. He discovered gold as soon as he washed some earth.

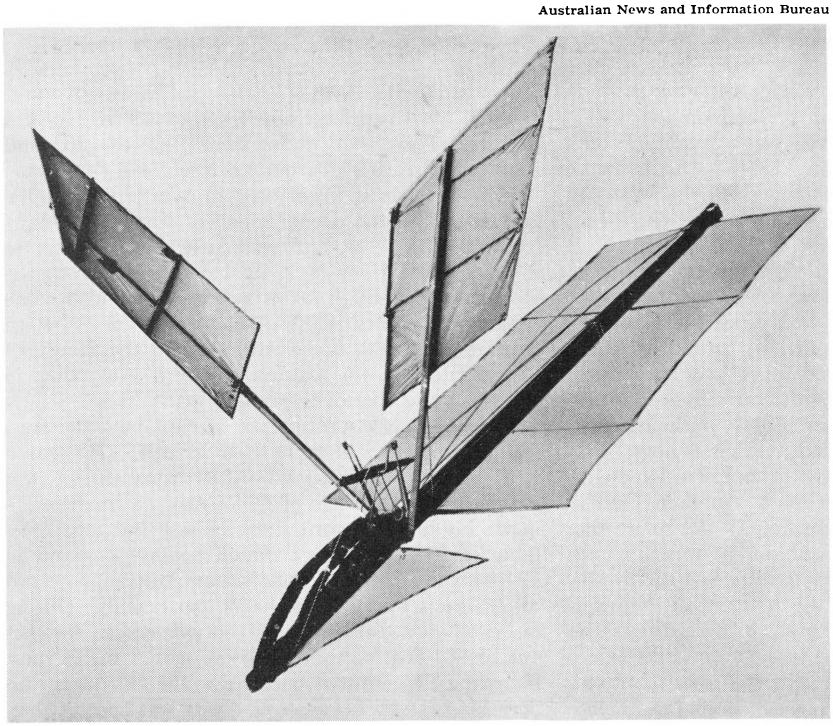
Hargraves reported his discovery to the government because he was anxious that others should exploit his find in an orderly way. He applied for a reward and eventually obtained £10,000 from the New South Wales government and £5,000 from the Victorian government. Later, he was also granted a pension of £250 a year for life. See also History of Australia (The Gold Rushes) in this volume.

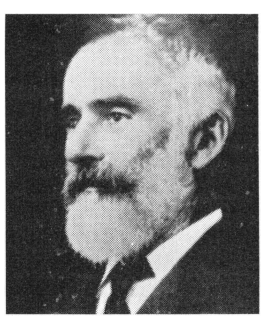
HARPUR, CHARLES (1813-1868), was one of the first Australian poets who tried to portray Australian life and landscape as it really was. He adapted the poetic diction of English poets to Australian needs. Harpur was not completely successful, but he influenced later poets such as Henry Kendall. His works include *Thoughts* (1845), *A Poet's Home* (1862), and *The Tower of the Dream* (1865). Harpur was born at Windsor, in New South Wales.

HARRIS, ROLF (1930-), an Australian entertainer and singer, first became well-known when his song "Tie Me Kangaroo Down, Sport" was a great success in 1960. His version of the song "Two Little Boys" sold over 900,000 copies in the first 15 weeks in Britain after it was released in 1969. His other hit songs include "Jake the Peg". He was born in Perth, and went to England in 1952 to study art.

HART, W. E. (1885-1943), an Australian aviator, was the first person to be awarded a pilot's certificate in Australia. The certificate was issued in December, 1911. Hart, a Sydney dentist, taught himself to fly after buying a Bristol *Boxkite* aircraft for £1,300. He made several of the first cross-country flights in Australia, and, in 1911, flew from Penrith to Sydney, reaching a height of 1,980 metres before landing at the Sydney Cricket Ground. In 1912, he held a 24-kilometre private race over a course from Sydney to Parramatta against an American pilot. Hart won the race. In the same year, he became a member of the Royal Aero Club of Britain. During World War I, he was an instructor with the Australian Flying Corps. Hart was born at Parramatta, in New South Wales, and named William Ewart Hart.

Australian News and Information Bureau





Australian News

Lawrence Hargrave, *above,* built many models designed to fly with flapping wings. One of the models, *left,* had a compressed-air engine, and flew 112 metres in 1890. It is now in the Museum of Applied Arts and Sciences in Sydney.

Australian News and Information Bureau

Neil Harvey

HARTOG, DIRK, a Dutch navigator born in the 1500s, was the first European to land on the western coast of Australia. Hartog was captain of the Dutch ship *Eendracht,* sailing to the Dutch East Indies (now Indonesia). He landed on the western coast of Australia in 1616. He named the whole region of the western coast *Eendracht Land.*

In 1611, another Dutch navigator, Hendrik Brouwer, had found a new route to the East Indies. He sailed south-eastwards from the Cape of Good Hope until northerly currents turned his ship towards Java. Hartog followed this route, but sailed too far south. He sighted land near Shark Bay in Western Australia in October, 1616. With a party from the *Eendracht,* he landed at what is now Dirk Hartog Island. While he was ashore, he fixed an inscribed pewter plate to a post. Another Dutch sailor, Willem de Vlamingh, found the plate in 1697. Today, it is preserved in a museum at Amsterdam, in The Netherlands. An English translation of the inscription on the plate is as follows: "On Oct. 25, 1616, there arrived here the ship *Eendracht* of Amsterdam, the supercargo Gillis Miebais of Liege, skipper Dirk Hartog of Amsterdam; on Oct. 27 sailed for Bantam: The subcargo Jan Steyn, the mate Pieter Ledocker van Bil."

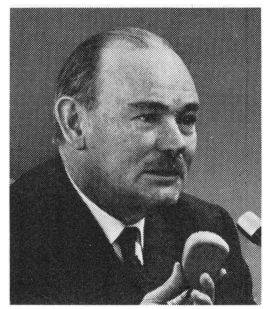
Historians know little of Hartog's life. The only information about him appears in records and maps of the Dutch East India Company (see DUTCH EAST INDIA COMPANY in the main volumes).

See also HISTORY OF AUSTRALIA (colour map) in this volume.

HARVESTER AWARD. See BASIC WAGE in this volume.

HARVEY, NEIL (1928-), one of Australia's greatest test batsmen, stands second only to Sir Donald Bradman in Australian batting averages for test matches. A left-handed batsman, he could score quickly without apparent effort. He was also one of the best fielders in the history of cricket. Harvey played in 79 test matches, scoring 6,149 runs at an average of 48·41 runs an innings. His highest score in a test match was 205, against South Africa in Melbourne in 1953. In 1948, he scored 112 runs in his first test match, against England. He was vice-captain of the Australian cricket team from 1957 to 1963. He was born in Melbourne and named ROBERT NEIL HARVEY.

See also CRICKET in this volume.



Sydney Morning Herald

Sir Paul Hasluck

Australian News

Lindsay Hassett

HASLUCK, SIR PAUL (1905-), was governor-general of Australia from 1969 to 1974. He was minister of external affairs from 1964 to 1969 and minister of territories from 1951 to 1964.

He was born at Fremantle, in Western Australia. He served in the Department of External Affairs from 1941 to 1947, and was Australian minister to the United Nations in 1946. He resigned from the Department of External Affairs in 1947 and became reader in history at the University of Western Australia in 1948. He was elected to the House of Representatives for Curtin, Western Australia, in 1949, as a member of the Liberal party.

HASSETT, LINDSAY (1913-), captained the Australian cricket team from 1948 to 1953. He was a fine batsman and scored 3,073 runs in 43 test matches at an average of 46·56 runs an innings. He made his highest score, 198, against India in Adelaide in 1948. In a test match against England in 1946, he and Don Bradman set an Australian record of 276 runs for a third-wicket partnership. During his captaincy, Australia lost only five test matches out of 20. For Victoria, Hassett scored 6,935 runs, including 23 centuries, at an average of 63 runs an innings. ARTHUR LINDSAY HASSETT was born at Geelong, in Victoria.

HASTINGS (pop. 45,512) is a city on the eastern coast of the North Island of New Zealand. It is located on the Heretaunga Plains, in Hawkes Bay province. Hastings is in the centre of rich grazing country where farmers raise sheep and some beef. There are two freezing works just outside the city. The district is known as *the fruitbowl of New Zealand*. The city houses New Zealand's largest canned and frozen foods processing plants. The Hastings district has more than 500 factories of various kinds.

The city is laid out in a formal pattern, with many parks and gardens. It is an important tourist resort and has many modern hotels and motels. A well-known tourist attraction is the Highland Games held every Easter at Hastings.

Hastings was first settled in 1864 on land reclaimed from swamp. It developed after the arrival of the railway in 1873. The city is named after Warren Hastings, the first governor-general of India. It has survived two great disasters—a fire in 1883 and an earthquake in 1931.

HATTA, MOHAMMAD (1902-), proclaimed Indonesia's independence together with Sukarno in 1945. He was prime minister of Indonesia from 1948 to 1950, and served as vice-president of the country from 1950 to 1956. He retired from politics in 1956 because he disagreed with Sukarno's policies.

Hatta was born in central Sumatra. He studied commerce in The Netherlands from 1922 to 1925. The Dutch arrested him in 1934 and exiled him to Netherlands New Guinea. During World War II, Hatta co-operated with the Japanese but maintained contact with the Indonesian underground movement.

HAU HAU MOVEMENT, one phase of the Maori Wars, was actually a revolt against European values. The founder of the movement, Te Ua, established a religion called *Pai Marire* (goodness and peace) in the mid-1860s. This religion combined old Maori beliefs with the teachings of the Christian missionaries. Te Ua's followers became known as *Hau Haus* because of the cry they uttered before battle. They believed that this cry would protect them from enemy bullets. As a result, they were fanatical fighters. Some Hau Haus revived primitive rites, such as cannibalism. The Hau Hau leaders were Titokowaru and Te Kooti.

In 1864, the Maori Wars flared up in Taranaki. The Hau Haus attacked settlers near New Plymouth. The revolt soon spread to the Wanganui area. Hau Hauism also became troublesome on the East Coast. There, the revolt began in 1865 and spread south into Poverty Bay and northern Hawkes Bay. Government troops finally crushed it in 1870.

See also KING MOVEMENT in this volume; MAORI WARS and TE KOOTI in the other Australasian volume.

HAURAKI PLAINS cover a large area of low-lying land in the lower basin of the Waihou and Piako rivers in the North Island of New Zealand. The plains have dairy farms, many of them on reclaimed swamp land.

HAUS TAMBARAN. See PAPUA NEW GUINEA (picture) in the other Australasian volume.

HAWAIKI. See HISTORY OF NEW ZEALAND (The Maori Voyagers [950-1350]) in this volume.

HAWDON, JOSEPH (1812-1871), a farmer, explorer, and politician, pioneered the first overland cattle route to South Australia in 1838. Hawdon was born at Wakefield, Durham, in England. He arrived in Sydney in 1834 and became a farmer near the present site of Dandenong in Victoria.

Hawdon realized the potential market for meat in the struggling colony of South Australia. In January, 1838, he and Charles Bonney, another pioneer, set out to drive 300 cattle from the Goulburn River in Victoria along the Murray River to Adelaide. They lost only four cattle. The journey took about 12 weeks. Hawdon discovered and named Lake Victoria and Lake Bonney on the way.

During the 1840s, Hawdon became a prominent member of the Pastoral and Agricultural Society in Melbourne. Later he went to New Zealand and was nominated to the New Zealand Legislative Council in 1866.

See also BONNEY, CHARLES, in this volume.

HAWKE, ROBERT (1929-), became president of the Australian Council of Trade Unions (ACTU) in 1969. Under his leadership, the ACTU extended its traditional labour activities, taking action on such controversial issues as retail price maintenance and tours by all-white South African sporting teams. The ACTU also entered retailing, making arrangements to buy a Melbourne department store.

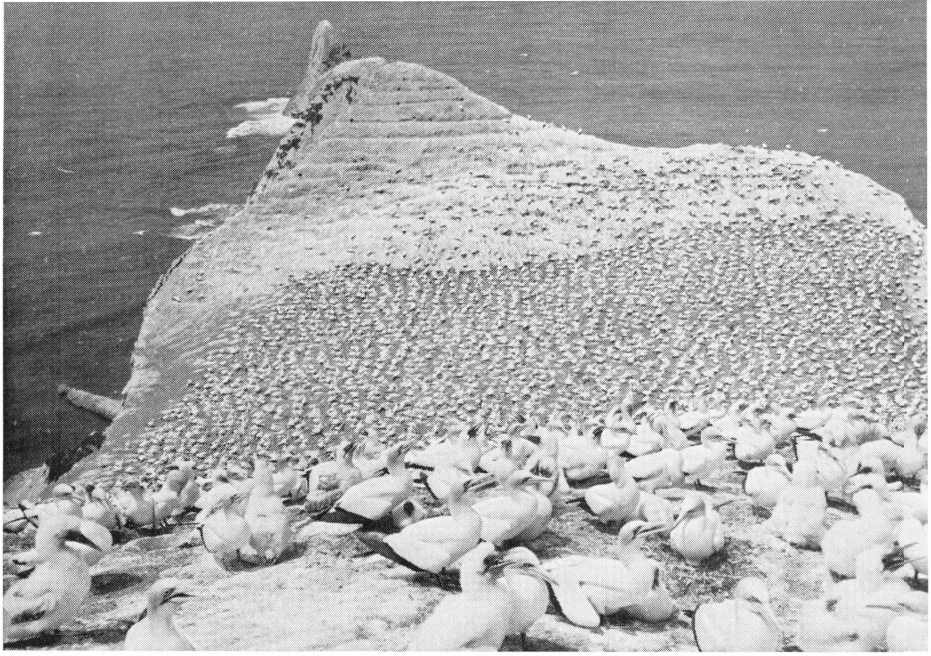
ROBERT JAMES LEE HAWKE was born at Bordertown in South Australia. He was educated at the universities of Western Australia and Oxford, where he studied as a Rhodes scholar from 1952 to 1955. He was a research scholar at the Australian National University from 1956 to 1958 and a research officer with the ACTU from 1958 to 1969.

HAWKE BAY is a bay on the eastern coast of the North Island of New Zealand. It extends from the inner coast of the Mahia Peninsula to Cape Kidnappers. Some of New Zealand's finest orchards, sheep farms, and agricultural lands are in this area.

HAWKER, GEORGE CHARLES (1818-1895), a farmer, pioneer, and politician, established a Merino stud, known as Bungaree, near Clare in South Australia in 1841. His holdings later expanded to about 28,000 hectares (80,000 acres). Experimentation in the breeding of Merino sheep on Hawker's property produced high quality wool.

Hawker was born in London. He landed in Adelaide in 1840. In 1858 he was elected to the South Australian House of Assembly and in 1860 he was chosen as its speaker. During his second term from 1875 to 1895, he served as treasurer, chief secretary, and commissioner of works.

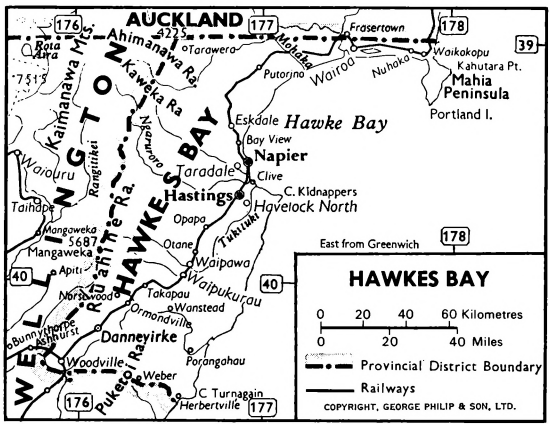
HAWKER, HARRY GEORGE (1889-1921), an Australian pioneer in aviation, won fame as a pilot and aircraft engineer during World War I. He founded the Hawker Engineering company, which became part of the Hawker Siddeley group, a leading British aircraft-manufacturing company. Hawker was born at South Brighton (now Moorabbin), in Victoria. He learnt to fly in Britain in 1912, and soon became a leading test pilot. He was killed in an aeroplane crash near London in 1921.



National Publicity Studios, Wellington

Gannets nest at a sanctuary at Cape Kidnappers, in Hawkes Bay, every year. They attract many tourists.

Fruit Growing is a major industry in Hawkes Bay. Many of the province's orchards are in or near Hastings.



HAWKES BAY is a province on the eastern coast of the North Island of New Zealand. It is the North Island's chief sheep-farming area and, together with the Northland district, is the island's chief fruit-growing area. Market gardens in Hawkes Bay produce vegetables for canning factories at Hastings, the province's second city. Hawkes Bay is named after Hawke Bay, which forms 322 kilometres (200 miles) of its coastline. The British navigator James Cook named Hawke Bay after the man who was then First Lord of the Admiralty in Britain.

The Land

Location and Size. Hawkes Bay extends for 483 kilometres (300 miles) along the coast, from just north of the Mahia Peninsula, on the northern tip of Hawke Bay, to Cape Turnagain. This cape is about 177 kilometres (110 miles) from the southern tip of the North Island.

The province is about 121 kilometres (75 miles) across at its widest point. It is bounded by Auckland province on the north and by Wellington province on the south and west.

Land Features. Steep hills rising near the beaches are a feature of much of the province's coastline, but the hills soon give way to fertile and sheltered valleys and inland plains. The most important of these, the Heretaunga Plains, lie on the southern arm of Hawke Bay. These plains cover about 233 square kilometres (90 square miles) and are the centre of the province's fruit-growing and wine-making industries.

The Heretaunga Plains give way in the central part of the province to rolling hills. Along the western boundary lie the Ruahine and Kaweka mountain ranges. These bush-clad mountains, rising up to 1,800 metres (6,000 feet), provide a natural sporting area for hunters of deer and wild pigs, and for walkers and mountaineers.

Rivers. Three main rivers flow into Hawke Bay from their mountain catchments. These rivers are the Ngaruroro, the Tutaekuri, and the Tukituki. They reach the sea within about 8 kilometres (5 miles) of one another, south of Napier. Two smaller rivers, the Mohaka and Wairoa, flow into the sea.

Climate. Hawkes Bay has a mild, temperate climate. In the north-eastern section of the province,

FACTS IN BRIEF

Largest Towns: Napier, Hastings.

Area: 11,033 square kilometres (4,260 square miles).

Population: 138,300.

Chief Products: Fruit, meat, processed foods, wood pulp, wool.

the summers are warm and the winters mild, but in most parts of Hawkes Bay there are no great extremes of temperature. In the coastal city of Napier, temperatures range between 14° C and 24° C (57° F and 74° F) in January and between 4° C and 13° C (39° F and 56° F) in July. Average annual rainfall is 793 millimetres (31.7 inches).

The People and Their Work

In the Towns. Napier and Hastings serve the surrounding farming areas. A wood pulp mill near Napier exports wholly to Japan. New Zealand's largest cigarette factory is located in the city. Hastings is the national centre of the fruit- and vegetable-processing industry.

In the Country. Most farmers in Hawkes Bay graze sheep. Three freezing works process lambs and beef cattle. Napier has the largest crossbred wool auctions in the world. Dairying is established in the high-rainfall southern part of the province.

Hawkes Bay is the largest fruit-growing district in New Zealand, and produces one-third of New Zealand's vegetables. The province has nine wineries.

Education

Hawkes Bay has more than 100 government-run primary schools. Most of the independent primary schools are operated by the Roman Catholic Church. The province has 8 independent secondary schools and 10 government-run secondary schools.

Things to See and Do

Hawkes Bay has many tourist attractions. Hastings has a festival of highland games at Easter, a spring blossom festival, and a miniature Disneyland called Fantasyland. Napier has a marineland, an aquarium, and a kiwi house.

History

The early settlement of Hawkes Bay, although interrupted by some skirmishes during the Maori Wars, was more peaceful than the settlement of some other provinces of New Zealand.

The first Europeans to visit Hawkes Bay were whalers who, in the late 1830s, established more than 20 whaling stations along the coast of the province. Today, iron pots used by the whalers for boiling down blubber still stand on a beach about a mile south of Cape Kidnappers.

In the early 1800s, nearly 50,000 Maoris lived in Hawkes Bay. Most of them lived near the coast and beside river-mouths where sea foods were plentiful. In the early 1840s, the first missionaries reached Hawkes Bay. Of these missionaries, the best known is William Colenso. He introduced the first printing machine into Hawkes Bay to print religious books.

The province's first farmer-settlers came from the southern part of the North Island by way of the coastal areas of the Wairarapa district. In 1849, a flock of 350 Merino sheep from the Wairarapa reached Hawkes Bay to form the basis of the province's sheep-farming industry.

See also DANNEVIRKE, HASTINGS, and HAWKE BAY in this volume; NAPIER in the other Australasian volume.

HAWKESBURY is a river in New South Wales. Its sources lie in the Blue Mountains to the west of Sydney, but its head-stream, the Wollondilly River, rises on the Great Dividing Range near Goulburn. The Wollondilly unites with Cox's River to form the Warragamba, which enters the Nepean River about a mile below the Warragamba Dam. From the junction of the Colo and Nepean rivers, the main stream is known as the Hawkesbury River to its mouth at Broken Bay. For location, see NEW SOUTH WALES (map) in the other Australasian volume.

The Hawkesbury-Nepean Valley between Penrith and Wiseman's Ferry is a rich agricultural and dairying district with easy access to the markets of Sydney. It produces vegetables, fruit, and fodder crops. Its dairying and poultry products also go to Sydney.

The area was the main source of grain during the early years of the colony of New South Wales. Ships carried goods between Sydney, Broken Bay, and the settlements of the Hawkesbury Valley. Governor Macquarie named Castlereagh, Pitt Town, Windsor, Richmond, and Wilberforce in 1810.

HAWKESBURY SANDSTONE SOIL. There are several types of soils associated with the Hawkesbury sandstone of the Sydney district. The one that is most common is termed a *lithosol*. The name is derived from the Greek word *lithos* (stone) and refers to the bedrock that is encountered at shallow depths in these soils. Hawkesbury sandstone lithosols are usually less than half a metre thick. They rarely completely cover the bedrock. Rocky outcrops and rock pavements are common. Sandstone *floaters* (loose pieces of rock) are found throughout the soil profile. The colour of the Hawkesbury sandstone lithosols is usually yellowish-grey near the surface and a brownish-yellow at depth. The texture is sandy and does not change significantly down the profile. But the soil often has a slight accumulation of organic matter in the top few centimetres and this accumulation provides some support for the vegetation cover. This vegetation consists of various types of eucalypts, with some banksias growing in the shrub layer in the poorer forests. The Hawkesbury sandstone lithosols are found over much of the coastal plateaus to the north and south of Sydney and parts of the Blue Mountains plateau to the west.

HAYMAN ISLAND is a national park 50 kilometres (31 miles) north-east of Proserpine and 29 kilometres (18 miles) from the coast of northern Queensland. It is in the Whitsunday group of islands, only 32 kilometres (20 miles) from the Great Barrier Reef. It contains 384 hectares (960 acres) of trees and bird life.

The tourist industry, with luxurious tropical accommodation lodges, caters for water sports, fishing, and entertainment. A main attraction is the colourful coral which appears at low tide on the western and southern sides of the island. The fish include mackerel, coral cod, and kingfish.

HEALTH CAMPS. See VOLUNTARY SERVICES (Rescue and Medical Groups) in the other Australasian volume.

HEALTH SERVICES

HEALTH SERVICES vary widely from country to country in Australasia. Australia and New Zealand have full programmes of health services to protect the health of people from infancy to old age. In New Zealand, the responsibility for the nation's health is undertaken by a partnership of central and local government, private medical practitioners, paramedical workers, charitable and religious organizations, and private citizens, with the central government providing encouragement, financial assistance, and incentives, and assuming final responsibility. In Australia, government and private agencies combine to provide medical care. Both countries have largely succeeded in controlling *communicable* diseases—that is, diseases that can be transmitted from one person to another. In Indonesia, Malaysia, and Singapore, health services are less fully developed.

Medical Care

Doctors are extremely important to any health service. In Australia and New Zealand, most people who need medical attention first call on their family doctor. In treating them, he may write a prescription for medicines, which the patient can get at a chemist's shop. The doctor may advise a patient suffering from a serious illness to consult a specialist. Or he may make arrangements for the patient to enter hospital. The patient is free to choose his own doctor, chemist, and hospital. New Zealand has 1 doctor to every 836 people and Australia has 1 doctor to every 720 people. Indonesia and Malaysia do not have enough doctors to attend to the needs of their large populations. For example, Indonesia has only 1 doctor to every 25,000 people. Most Indonesians cannot afford to pay for the services of a trained doctor. They consult medical practitioners, called *dukuns,* who perform spiritual and physical healing. Many dukuns are self-trained, but they may also receive instruction at village schools.

Hospitals provide medical attention for people suffering from illnesses that cannot be treated in their homes. New Zealand has 1 hospital bed to every 130 people, Australia 1 to every 82 people, and Indonesia 1 to every 1,000 people. The governments of these countries are trying to increase the number of hospitals as part of a programme to improve health services.

In Australia, the state governments administer most hospitals. The federal government provides hospitals in the Australian Capital Territory and the Northern Territory. Private people and religious and charitable organizations own and run many private hospitals and nursing homes.

In Indonesia, many villages have government-built hospitals nearby. But the number of hospital beds available is not great enough to serve the needs of the rapidly growing population. Many estate owners and many employers in the oil industry provide clinics and other medical services for their workers. Specialist hospitals include a maternity hospital in Makasar and a hospital for the blind in Semarang.

Medicines. Patients can obtain general medicines for treating minor ailments from a chemist without a doctor's prescription. But a prescription is needed for the more potent medicines and drugs. In Australia, the federal government operates a plan to ensure that patients can buy most of the medicines they need at a nominal price. Commercial manufacturers supply most of the country's medicines and drugs. The National Biological Standards Laboratory, run by the federal government, checks drugs for potency and purity. The Commonwealth Serum Laboratories provide vaccines and drugs for public health campaigns run by the federal and state governments. In New Zealand, most medicines are free under the government's health plan.

Dental Treatment

Dental treatment is of a higher standard in Australia and New Zealand than in Indonesia, Malaysia, or Singapore. The governments are trying to improve dental health by increasing the number of dentists. In Australia and New Zealand, public authorities take preventive measures against tooth decay. For example, some towns and cities have *fluoridated* water supplies (see FLUORIDATION in the main volumes).

Most people in Australia, even in the remotest parts, can have treatment by a dentist. Mobile units serve people in thinly populated inland areas. The Flying Doctor Service provides dental treatment in special circumstances (see FLYING DOCTOR SERVICE in this volume). Australia has no government-sponsored plan to pay for dental treatment.

Indonesia has both government-employed dentists and private dentists. Most large cities have 1 dentist to about every 60,000 people. But many country

Public Health Teams in Indonesia test children to find out if they are immune to tuberculosis. They later vaccinate children who do not show immunity to the disease.

A.N.I.

areas have only 1 dentist to every 200,000 people. Patients who cannot afford to pay for the services of a trained dentist go to unlicensed dentists, called *tukang gigi* (craftsmen of the teeth), or to dukuns. Unlicensed dentists use simple, and sometimes unhygienic, equipment. Sometimes they extract teeth with their fingers.

In Malaysia, the government employs more than a hundred dental officers to supervise the dental health of school-children. They also treat children who have not reached school age, expectant mothers, and patients in government hospitals. Their services are free.

New Zealand has school dental clinics for children and private dentists for adults. Government health benefits cover dental treatment for children but not for adults.

Children's Health

The governments of Australasia are working to raise standards of child care in their countries. Much work has already been done. With the introduction of higher standards in maternity hospitals and in nursing and medical care, fewer babies and young children die. Out of every 1,000 babies born live in Australia, 17 die within a year of birth. In New Zealand, about 20 out of every 1,000 Maori children and about 14 out of every 1,000 European children die within a year of birth.

Mother and Child Care. In Australia, state and local authorities and private groups run infant welfare clinics in many towns and cities. These clinics advise mothers on how to protect their health and that of their babies before and after childbirth. They advise mothers on diet, clothing, and many other matters. Australia has no midwife services for mothers wishing to have their babies at home. Most babies are born in maternity hospitals.

In Indonesia, several committees working under the Department of Health look after children's health. Their most urgent task is to control malnutrition and malaria among children. Indonesia has 800,000 blind people, about half of them children under the age of 16. Many of these children became blind as a result of malnutrition. The committees receive little financial assistance from the government, and are severely handicapped in their work because they lack money and trained staff.

In Malaysia, both country and city areas have health centres for mothers and children. Mothers can get advice or treatment for minor illnesses at these centres. Staffs of midwifery clinics visit expectant mothers in their homes.

In New Zealand, expectant mothers receive care from their doctors or at hospital clinics free of charge. About 95 out of every 100 Maori babies and 99 out of every 100 European babies are born in hospital. Public health and Plunket nurses look after the health of infants and children who have not reached school age. Government-employed doctors work with both these groups of nurses.

Care for School-Children. In Australia, the state and federal governments co-operate in providing health services for school-children. The state governments operate school medical and dental services.

Under a scheme introduced in 1973, the federal government began providing substantial grants to the states to develop a school dental service to ensure a unified service throughout Australia. When fully developed, the service will offer free dental care to all children under 15 years of age. The aim is to cover all primary school children by 1980, and then to expand the service to cover pre-school children and secondary school pupils under 15 years. The federal government also provides hearing aids for children who are partially or completely deaf.

In New Zealand, government-employed doctors and nurses supervise the health of primary and secondary school-children. Health education and physical training are an important part of school courses in Australia and New Zealand. New Zealand children in primary and secondary schools receive instruction in health education as part of the school curriculum. Sport and recreation are important features of school life. Many schools have instructors on their staffs who have been specially trained to teach physical education.

Public Health

The governments of Australasia have public health programmes that aim to prevent disease, promote health, and prolong lives through the efforts of both individuals and the community. They try to prevent illness by providing adequate sewerage systems and safe drinking water, by ensuring that people have a sufficiently nourishing diet, and by controlling disease-carrying insects.

In Australia, the federal and state governments co-operate to provide a comprehensive plan for health services. The federal government operates benefit programmes that are designed to enable people to pay doctors' charges and the costs of hospital care and medicines. It also conducts a quarantine programme and has many specialist laboratories. Some laboratories have facilities for checking the standards of drugs and other items used in medical care. Others have facilities for medical research and for helping private doctors to diagnose and treat illnesses.

The state governments and religious and charitable organizations provide hospitals. The state governments also provide such services as medical and dental treatment for children and mental care. They run health education programmes to teach people the precautions they should take against illness. In each state, city and district authorities provide health inspection and hygiene control services. Sometimes the federal and state governments take joint action against specific diseases. In this way, they have brought poliomyelitis and tuberculosis under control. Some public bodies run campaigns to promote safety, especially on the roads (see ROAD SAFETY in the other Australasian volume).

The federal government's health activities are under the control of the minister of health. Each of the six states also has a minister of health responsible for services provided by the state. According to official estimates, the Australian government spends

Beverley Clifford

District Nurses visit patients in their homes. They take care of patients who have recently left hospital and give them advice on how to look after themselves during convalescence.

nearly 8 per cent. of its total budget on health services.

In New Zealand, the government assumes final responsibility for the country's complete health programme. Growing urbanization and industrialization have increased health problems caused by environmental pollution. Public health services include the areas of environmental health, communicable diseases and quarantine, occupational health and toxicology, food and nutrition, radiation protection, health education, and family health.

The government has sponsored extremely successful campaigns to prevent diphtheria, poliomyelitis, tuberculosis, rubella, measles, and *hydatid* disease (a disease caused by tapeworms).

Central control by the New Zealand government is provided by the head office of the Department of Health, which is responsible to the minister of health. The country is divided into 18 health districts, each under the control of a medical officer of health. Advisory committees with members from other government agencies, local government bodies, universities, and professional and technical groups help the minister in his work.

In Indonesia, the chief aim of the public health programme is to wipe out such diseases as malaria. Preventive measures against the disease include the use of insecticides to destroy *Anopheles* mosquitoes, which carry malaria parasites (see MALARIA [Control and Prevention] in the main volumes). The government also works to destroy the breeding-grounds of mosquitoes. It has succeeded in controlling malaria in city areas. But malaria is still one of the country's most destructive diseases. One out of every 3 people has malaria, and 1 out of every 900 dies of malaria each year.

Tuberculosis is the second most destructive disease. It causes 1 out of every 10 deaths. The disease continues to be destructive largely because the people do not have adequate food, accommodation, or medical attention. The government also conducts campaigns against yaws, smallpox, and typhoid.

Malaysia, like Indonesia, has diseases such as malaria, but they are being brought under control. In the early 1960s, only 1 per cent. of deaths in hospitals resulted from malaria. The government's public health programme also includes measures to control tuberculosis and yaws. It receives help from the World Health Organization (WHO) in its campaign against yaws. Its other measures include setting up country health centres in an effort to reduce the number of infants who die.

Voluntary Health Services

Voluntary health services organized by private groups supplement the health services provided by governments. Members of voluntary health organizations do much to improve health conditions in the communities in which they work. They learn much about the ways in which health standards can be maintained or improved. They may have special knowledge of the problems of their communities and can adapt health measures to suit their particular needs.

Some voluntary health services operate in most parts of Australasia. For example, the Red Cross is active in Australia, Indonesia, Malaysia, New Zealand, and Singapore. The St. John Ambulance Brigade provides first-aid and ambulance services in all these countries except Indonesia. Other voluntary services operate in only one or two countries of the area.

In Australia, many health services originally begun by private groups are now merged with government services. The federal government subsidizes the Flying Doctor Service and the Red Cross Blood Transfusion Service. The blood transfusion service takes donations of blood. It stores the blood and distributes it free to hospitals and other places in which it is needed. In many areas, voluntary

groups have formed anti-cancer councils to help co-ordinate cancer research and make the public more fully aware of the need for precaution. The National Heart Foundation receives wide support.

New Zealand has many organizations that provide a wide range of voluntary health services. The Plunket Society trains girls in the Karitane system of nursing women and children (see KARITANE SYSTEM in this volume). Other societies include the Crippled Children's Society, Intellectually Handicapped Children's Society, League of the Hard of Hearing, Federation of the Tuberculosis Association, Maori Women's Welfare League, National Safety Association, and New Zealand Foundation for the Blind.

Voluntary groups play a more important part in the health services programmes of Indonesia, Malaysia, and Singapore than in those of Australia and New Zealand. In Indonesia, private groups administer one out of every four hospitals. Some of the best hospitals are run by church organizations. The Indonesian Red Cross has a large number of trained nurses and voluntary first-aid helpers. In the cities, political parties have clinics that distribute free medicine.

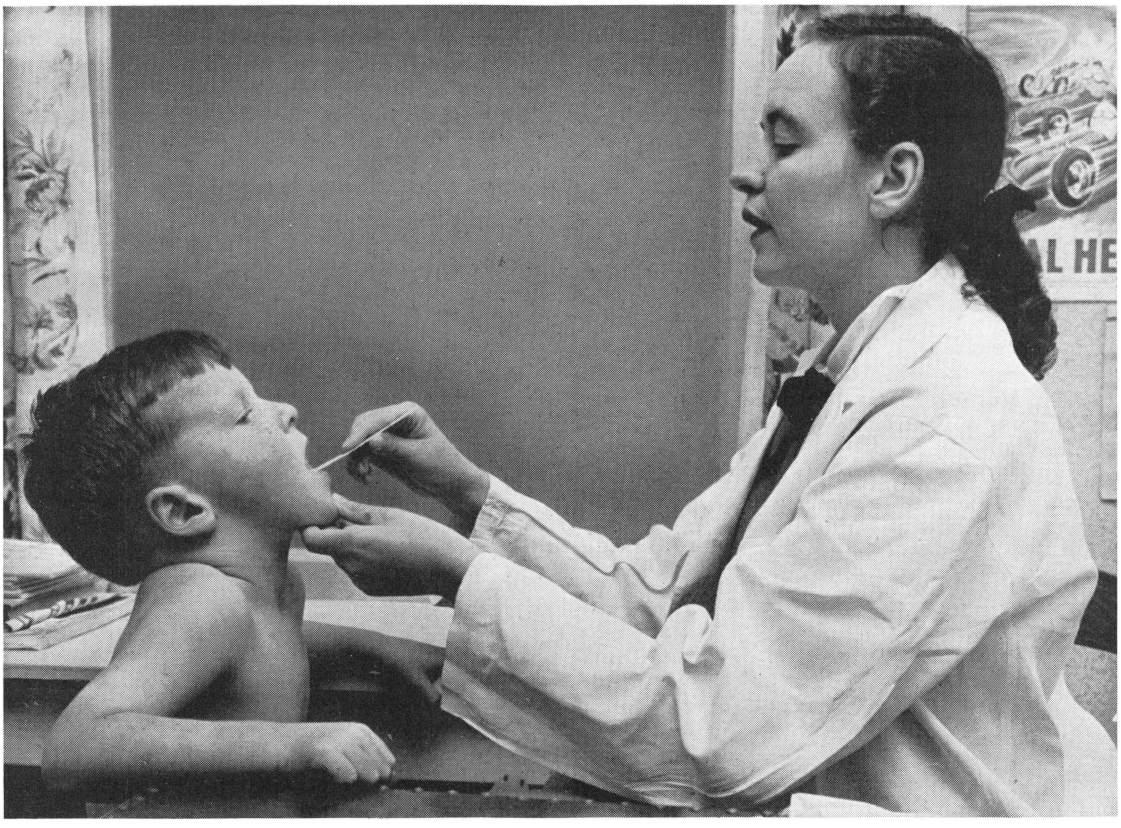
In Malaysia, Christian missionaries and Buddhist, Hindu, and Muslim organizations also do valuable social work. Other voluntary groups include the Malayan Association for the Blind and the National Association of Women's Institutes. The government merely helps to co-ordinate the work of private groups in many fields. It gives limited financial assistance to some private organizations.

Medical Research

Research is a vital part of public health services. Research workers trace the causes and study the spread of diseases and try to discover more effective medicines and methods of treatment. As a result of research work on vaccines, whole populations can be protected against some diseases.

In Australia, the federal and state governments and voluntary bodies such as business firms and groups of private individuals support special research institutions and projects. The federal government makes yearly grants to the National Health and Medical Research Council. The council advises the federal and state governments on health problems and selects and sponsors research projects. The chief universities have medical research departments. Medical research institutions include the Institute of Medical and Veterinary Science, in Adelaide; the Queensland Institute of Medical Research, in Brisbane; the John Curtin School of Medical Research at the Australian National University, in Canberra; the Walter and Eliza Hall

Dental Nurses in New Zealand examine school-children to find out if their teeth are in a healthy condition, and carry out necessary dental treatment.
New Zealand National Publicity



Institute, in Melbourne; and the School of Public Health and Tropical Medicine, in Sydney.

In Indonesia, more than 10 centres carry out medical research. They devote most of their funds to collecting statistical information on the occurrence of diseases and to preparing medicines from local herbs and leaves. They have developed medicines for such ailments as headaches, high blood pressure, and dysentery. Research at higher levels is difficult because of the shortage of money, equipment, and staff. Indonesia's largest medical research centre is part of the University of Indonesia, in Jakarta.

In Malaysia, the Institute for Medical Research at Kuala Lumpur conducts research on diseases and medicines and prepares vaccines. The institute has branch laboratories in Pahang, Penang, Perak, and Negri Sembilan. It co-operates with an American research team, financed by the United States government, which does research work on tropical diseases.

In New Zealand, the government provides the funds for the Medical Research Council, which conducts research in medical schools and hospitals. Research funds are supported by grants from a state lottery. Finance and participation in research also comes from the Cancer Society of New Zealand, the National Heart Foundation, five provincial medical foundations, and other organizations supporting research in specific fields.

Health Benefits

In Australia, the federal government operates a health benefits plan which combines individual responsibility with government assistance. A person can receive financial help with health care costs by joining a health insurance organization and paying regular contributions. There are about 90 such organizations registered in Australia, all operating on a non-profit basis. About three out of every four Australians are members of these organizations. Their contributions entitle them to refunds for medical and hospital expenses, part of which are paid by the government and part by the organizations.

Special provision is made under a section of the health benefits plan, called *subsidized health benefits,* to help people who may have difficulty in meeting the cost of contributions. These people include families on low incomes, newly arrived immigrants during their first two months in Australia, and people receiving unemployment, sickness, or special benefits from the department of social security. They are entitled to medical and hospital benefits either free of charge or at reduced contribution rates. They are also entitled to receive certain medicines from chemists on a doctor's prescription for a contribution of 50 cents instead of the normal contribution of $1.00 per item paid by most Australians under the government's pharmaceutical benefits scheme. Special provision is also made for pensioners and their dependents. They receive free medical care, hospitalization in public hospitals, and pharmaceutical benefits.

Members of hospital benefits organizations pay contributions graduated according to the level of hospital care they prefer. There are usually three benefit levels, covering the charges for public ward, intermediate ward, or private ward accommodation in public hospitals. Insurance against hospital charges is also available, but in some cases the full cost of private hospital treatment cannot be covered by insurance. The type of accommodation available and the charges vary from state to state. The cost of contributions also varies from state to state. These contributions generally entitle the member to a full refund of accommodation fees and the cost of any extra services such as theatre fees, plasters, splints, heart valves, and so on. There is some variation among the states and between public and private hospitals within the states. In Queensland, the state government provides free public ward accommodation.

Members of medical benefits organizations also pay varied contribution rates, depending on the state in which they live and the organization to which they belong. The contributions entitle the members to substantial refunds on all scheduled medical services, ranging from simple consultations to the most complicated operations. The scale of refunds is based on scheduled medical fees determined by an independent medical fees tribunal.

In New Zealand, the government provides health benefits financed from taxation and all people normally resident in New Zealand belong to the government health benefits scheme. If they become ill, they receive benefits which meet the full cost of inpatient treatment in public hospitals and the cost of other treatments and services in full or part. The treatments and services covered by the health programme include hospital care, maternity care, nursing, artificial aids, medicines, and X-rays.

Aids to Learning

Related Articles. See HEALTH, in the main volumes, and its list of related articles. See also the following articles in the Australasian volumes:

Karitane System
Leper Colonies
Malaria Research
Scientific Research (Medical Research)
Social Services
Voluntary Services

Outline of this article is as follows:

I. **Medical Care**
   A. Doctors
   B. Hospitals
   C. Medicines
II. **Dental Treatment**
III. **Children's Health**
   A. Mother and Child Care
   B. Care for School-Children
IV. **Public Health**
V. **Voluntary Health Services**
VI. **Medical Research**
VII. **Health Benefits**

Books to Read about this topic include:

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Kewley, T. H. *Social Security in Australia, 1900-1972.* Sydney University Press, 1973.

Smart, K. F. (ed.) *Malnutrition and Endemic Diseases: Their Effects on Education in the Developing Countries.* UNESCO, 1972.

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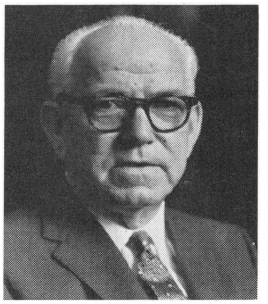


Australian News

Robert James Heffron

Australian News

Sir Bernard Heinze

HEARD ISLAND is an Australian territory in the far southern Indian Ocean. It lies about 4,000 kilometres (2,500 miles) south-west of Fremantle. Heard Island is about 43 kilometres (27 miles) long and 21 kilometres (13 miles) wide. Britain transferred the island to Australia in 1947. An Australian weather station operated there from 1947 to 1955.

HEFFRON, ROBERT JAMES (1890-), an Australian Labor politician, was premier of New South Wales from 1959 until he retired in 1964. He worked to reunite the state and federal branches of the Labor party in 1933. He did so against the wishes of the party leader, J. T. Lang.

Heffron was born at Thames, in the North Island of New Zealand. He moved to Australia in 1919, and entered the New South Wales state parliament in 1930. In 1941, he became the state's minister for national emergency services. Between 1944 and 1960, as the state's minister of education, he greatly increased the number of primary and secondary schools in New South Wales. He also did much to promote the introduction of the Wyndham Scheme.

HEIDELBERG SCHOOL was a group of young painters who worked on the tree-clad hills overlooking the Yarra River in the Melbourne suburb of Heidelberg. The group consisted of Tom Roberts (1856-1931), Frederick McCubbin (1855-1917), and, later, Walter Withers (1854-1914). Their common aim was *plein air* (open air) impressionism as introduced to Australia from France by Roberts. French impressionists used the seven colours of the spectrum applied in small related brushstrokes. Roberts adapted the principles to Australian conditions, and with his friends set up camps, first at Box Hill, then Heidelberg or Eaglemont, where they painted and taught.

See also ARTS OF AUSTRALIA in this volume.

HEINZE, SIR BERNARD (1894-), a conductor and musical scholar, made a major contribution to the development of orchestral concerts in Australia. He organized a series of regular concerts for school children, beginning in 1925. He also began the youth concerts, starting in 1947.

Heinze was born at Shepparton, in Victoria. He studied at the conservatory attached to Melbourne University and at the Royal College of Music in London. He was appointed Professor of Music at Melbourne University in 1926. He became conductor of the Melbourne Symphony Orchestra in 1933. He was director of the New South Wales Conservatorium of Music from 1957 to 1966.

HELIDON is the site of a spa containing mineral water about 14 kilometres (9 miles) from Toowoomba in Queensland. In 1973 an analysis of the spa water in the swimming pool, which stands beside the main road, showed that it contained 2,270 parts per million of *sodium bicarbonate* (baking soda) and 433 parts per million of *sodium chloride* (salt). The original spa water company began operation before 1900. It was on land owned by Gilbert Primrose, the founder of the company.

HELLYER, HENRY (1792-1832), an explorer, investigated the Mersey River area of Tasmania with Clement Lorymer in 1826. They were trying to find suitable grazing land for the Van Diemen's Land Company. They were forced to turn back near Mt. Roland, but reported good land towards St. Valentine's Peak. In 1827, Hellyer investigated this land and discovered the Surrey and Hampshire Hills and the Hellyer and Arthur rivers. He recommended Emu Bay, the present site of Burnie, as an outlet for settlement. He also constructed roads and stock routes.

HELPMANN, SIR ROBERT (1909-), an Australian actor, ballet dancer, and choreographer, was a principal dancer with the Vic-Wells Ballet from 1935 to 1950. During this time, he toured Europe and North America. He became one of the principal choreographers for the Sadler's Wells Ballet (now the Royal Ballet) in 1943. He created *Yugen* for the Australian Ballet Company in 1964 and became co-artistic director of the company in 1965.

During his acting career, he played leading parts in many plays by Shakespeare. He first appeared with the Old Vic in 1937 in *A Midsummer Night's Dream*. He led the Old Vic Australian tour in 1955 and directed the company's world tour in 1961. He acted in many films, including *Henry V* and the ballet film *The Red Shoes*.

He was born at Mount Gambier, in South Australia, and named ROBERT MURRAY HELPMANN. His first appearance on the stage was at the Theatre Royal, Adelaide, in 1923. He was knighted in 1968.

HENRICKS, JON (1935-), an Australian swimmer, won the Olympic 100 metres free style at Melbourne in 1956 in record time. He also anchored the record-breaking 4 × 200 metre relay team. While attending the University of Southern California, he won the United States 100 and 200 metre titles in 1958. He represented Australia at the Rome Olympics in 1960, but failed to qualify because of illness.

HENRY, SIR ALBERT (1907-), became the first premier of the Cook Islands in 1965 after the islands received internal self-government from New Zealand. He was born at Aitutaki, in the Cook Islands. In 1943, Henry formed the Cook Islands Progressive Association, which originally aimed to establish its own stores and export outlets. Later, it developed into a political organization and opposed New Zealand's administration of the islands. In 1948, the government broke the power of the association, and Henry settled in New Zealand. He returned to the Cook Islands in 1964 and formed the Cook Islands party. He was later elected to the Assembly. He was knighted in 1974.

HENTY was the name of a pioneering family in Australia. During the late 1820s and early 1830s, the Hentys migrated from West Tarring, in south-eastern England. They are generally regarded as the first Europeans to settle in what is now Victoria. But descendants claim that the Mills brothers settled at Port Fairy before the Hentys settled at Portland. See MILLS in the other Australasian volume.

The family consisted of Thomas Henty (1775-1839), his wife, seven sons, and one daughter. His children were James (1800-1882), Jane (1805-1893), Charles (1807-1864), William (1808-1881), Edward (1810-1878), Stephen George (1811-1872), John (1813-1868), and Francis (1815-1889).

In 1829, James, Stephen, and John migrated to Western Australia. Later, they moved to Van Diemen's Land (now Tasmania). In the meantime, Thomas Henty had settled on the island with the rest of his family. In 1834, he sent his fourth son, Edward, to explore the southern coast of the Australian mainland in search of good farming land. Edward began farming at Portland Bay, and became the founder of Victoria's wool industry. Later, the rest of the family joined him.

The Hentys prospered. James, William, Edward, and Stephen became members of legislative councils in the colonies. William served as colonial secretary in Tasmania from 1857 to 1863. James founded a business in Melbourne. He promoted a railway company and was a commissioner for savings banks.

HERBERT, XAVIER. See LITERATURE OF AUSTRALIA (The Third Period [1920-]) in this volume.

HEYSEN, SIR HANS (1877-1968), an Australian artist, became famous for his paintings of the Australian countryside, especially in the northern part of the Flinders Range, in South Australia. He also painted much of the country round his home town of Hahndorf, in the Mount Lofty Ranges. He won the Wynne Prize for landscape painting four times. His paintings evoke the strangeness of the Australian countryside and the ghostliness of its gum trees.

Heysen was born at Hamburg, in Germany, and sailed to Australia at the age of six. He studied painting at the Adelaide School of Arts. He later studied in France and Italy.

HIDES, JACK (1906-1939), an Australian patrol officer, made many important discoveries in the rugged interior of New Guinea. He published four books on the area. He was born at Port Moresby, and was named JOHN GORDON HIDES. In 1931, he led a patrol from Kerema, on the Gulf of Papua, towards Wau. In 1935, he explored the country between the Strickland and Kikori rivers. In 1938, he explored the Strickland River area in search of gold.

HIGGINS, HENRY BOURNES (1851-1929), became famous for his *Harvester industrial award* of 1907. He proposed a national basic wage of £2. 2*s*. a week for labourers to meet "the normal needs of an average employee as a human being in a civilized society". The federal government eventually accepted the award as Australia's first basic wage (see BASIC WAGE in this volume). Higgins was born at Newtownards, in Ireland. From 1904 to 1906, he was attorney-general of Australia. In 1906, he became a judge of the High Court and of the Commonwealth Arbitration Court. But he resigned in 1920 as a protest against alleged political interference.

HIGH COURT. See LEGAL SYSTEM OF AUSTRALIA (Federal Courts) in this volume.

HIGHWAYS. See ROADS AND HIGHWAYS in the other Australasian volume.

HIKING. See TRAMPING in the other Australasian volume.

HILL, ALFRED (1870-1960), one of Australia's best-known composers, developed themes from Maori chants and used them in many of his compositions. These works include his song *Waiata Poi,* his cantata *Hinemoa,* his opera *Tapu,* and his string quartet *Maori.* Hill was born at Melbourne, but spent his boyhood in New Zealand. At 15, he went to Leipzig, in Germany, to study violin and composition, returning to New Zealand in 1891. He settled in Sydney in 1895 and became the first professor of composition at the New South Wales State Conservatorium in 1915. He visited the United States and conducted his works there in 1927.

HILL, ERNESTINE (? -1972), an Australian author, wrote the historical novel *My Love Must Wait* (1941). Her novel is based on the life of the explorer Matthew Flinders. The subject matter of Flinders's successful exploration and his unhappy later years lends itself to the romantic and emotional treatment of the novel. Critics praise the novel for its factual accuracy and its skilful reconstruction of historical background.

She was born in Brisbane and named ERNESTINE HEMMINGS. She also wrote several excellent Australian travel books.

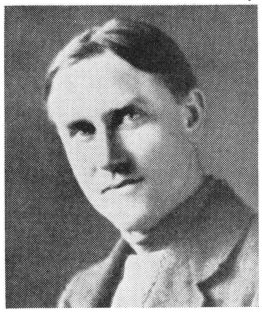
HILLARY, SIR EDMUND PERCIVAL. See HILLARY, SIR EDMUND PERCIVAL, in the main volumes.

HILLIARD, NOEL. See LITERATURE OF NEW ZEALAND (Novels) in this volume.

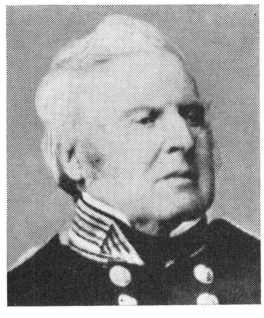
HINDMARSH, SIR JOHN (1785-1860), a British naval officer, was the first governor of South Australia, from 1836 to 1838. He shared his responsibilities with the resident commissioner of the South Australian Colonization Commission. He disagreed with the commission's choice of a site for the new settlement of Adelaide. He began suspending public officers, and the British recalled him in 1838.

Hindmarsh was born in Britain. He joined the navy in 1793, and fought at the Battle of the Nile in 1798 and the Battle of Trafalgar in 1805.

Sir Hans Heysen
The Mitchell Library



Sir John Hindmarsh
The Mitchell Library



Bert Hinkler became famous for his record-breaking flight from Britain to Australia in 1928. When he landed in Darwin, people swarmed round his plane to give him a hero's welcome.

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HINKLER, BERT (1892-1933), an Australian aviator, made the first solo flight from Britain to Australia in 1928. He made the flight in a single-engined *Avro Avian* aircraft in 15½ days. After the flight, which broke five aviation records, the Australian government gave him a grant of £2,000 and made him an honorary squadron leader in the Royal Australian Air Force.

Hinkler was born at Bundaberg, in Queensland, and was named HERBERT JOHN LOUIS HINKLER. He was educated at Bundaberg. In 1911, he went to Britain, where he worked as an aircraft engineer. He joined the Royal Naval Air Service in 1914, serving first as an observer and later as a pilot.

In 1920, he made the first non-stop flight from London to Turin, in Italy, taking 9½ hours. Later, he flew an *Avro Avian* 1,930 kilometres on a non-stop flight from Britain to Russia, breaking the world distance record for light aircraft. In 1931, he made a round-trip flight from London to the West Indies, on to Brazil and Africa, and back to London. In 1933, he tried to break the flying speed record from Britain to Australia. He crashed near Florence, in Italy, and was killed.

HIRE-PURCHASE is a widely used method of buying goods in Australia and New Zealand. It is used chiefly in buying durable consumer goods such as motor-cars, television sets, and washing-machines. Hire-purchase is less common in Malaysia and Singapore. It is not used in Indonesia.

The growing use of hire-purchase in Australia and New Zealand reflects the changes that have taken place in the economies of these countries since World War II. People have more financial security, and are prepared to enter into hire-purchase agreements to pay sums of money at regular intervals over fairly long periods. More people own their own homes, and tend to buy the more expensive items of household furniture and equipment on hire-purchase.

In Australia, hire-purchase debts increased from about $A 50 million during the late 1930s to more than $A 800 million during the early 1960s. Hire-purchase debts on motor vehicles made up more than half of this amount. Debts on household and personal goods made up about a quarter. The minimum deposit required by law on various goods varies from state to state and from time to time. In the mid-1960s, people in Victoria buying a second-hand motor-car had to pay a tenth of the total value as a deposit. In New South Wales, they had to pay a quarter.

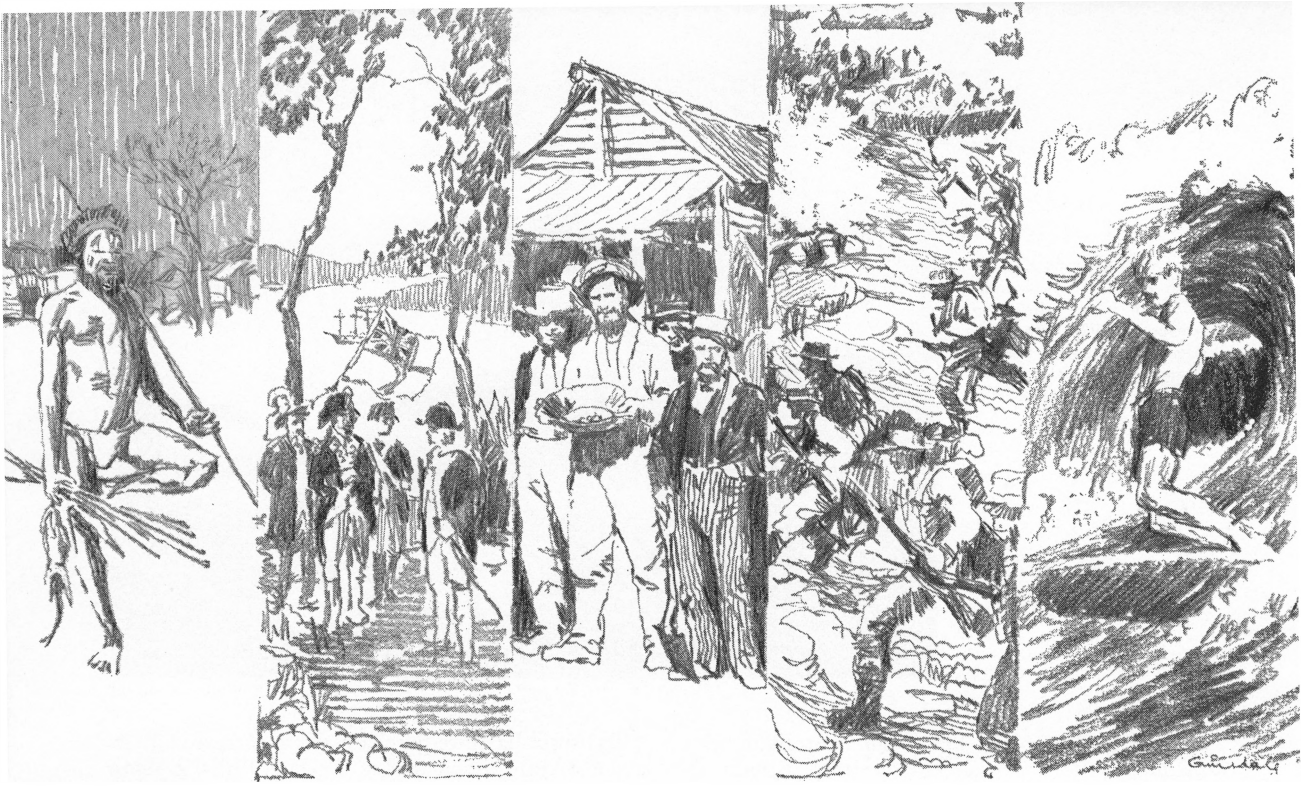
In New Zealand, consumers have more difficulty in buying goods on hire-purchase than in Australia, because of government regulations. In the mid-1960s, people buying a second-hand motor-car on hire-purchase had to pay half of the total cost as a deposit, and the remainder within 18 months.

But, in spite of these restrictions, the amount of hire-purchase debt is growing steadily. According to a survey of a limited number of companies, hire-purchase debts rose from about $NZ 8 million a year in the late 1930s to about $NZ 26 million a year in the early 1960s. Hire-purchase debts on motor vehicles made up about one-sixth of this amount during the early 1960s. Debts on household and personal goods made up about a third.

In Malaysia and Singapore, hire-purchase is increasing as standards of living improve. More and more people buy television sets, refrigerators, and other items of household goods and equipment on hire-purchase.

In Indonesia, people buy goods on credit rather than on hire-purchase (see CREDIT in the main volumes). Finance companies charge interest rates amounting to as much as a quarter of the value of the loan each month. Banks charge interest amounting to about one-tenth of the value of the loan.

See also INSTALLMENT PLAN in the main volumes.



HISTORY OF AUSTRALIA. For many thousands of years, aboriginal peoples who probably came from southern Asia occupied the island continent that is now called Australia. During the late 1700s and early 1800s, the British colonized Australia because they needed somewhere to send their convicts. They established settlements for convicts along the eastern coast of the continent, in Van Diemen's Land (now Tasmania), and in Norfolk Island, in the Pacific Ocean. Soon, former convicts and free settlers began to make up most of the population of the new country. Many of them became farmers who exported wool. Later, they demanded, and won, self-government under the British Crown.

In 1851, prospectors discovered gold in the southeastern part of the continent. Australia's population and wealth grew rapidly. New lands became open for agriculture. Cities began to grow. New industries emerged and flourished. Democratic government was established.

The 1890s were years of economic crisis and industrial unrest. Members of the newly formed Labor party gained seats in parliament. This period was also a time of rising nationalism. Australians became proud of being Australian. In 1901, the six Australian colonies federated. The Commonwealth of Australia came into being.

The new federal government established policies of social welfare, protection of local industries, and a "white" Australia. In 1914, Australia entered World War I beside Britain. Australians gained a world-wide reputation as fighters. The nation had grown up. Industry developed rapidly during the war. After it, Australia experienced boom, depression, and then recovery.

In World War II, Australia again fought beside Britain. For the first time, the country was in danger of invasion. Japanese aeroplanes bombed Darwin and midget submarines entered Sydney Harbour. But American forces defeated the Japanese in the Pacific Ocean, and Australian troops managed to stem the Japanese advance on the Kokoda Trail in New Guinea.

In the post-war years, Australia continued to develop its economy, enlarge its population, and preserve its national security. It began to establish new relations with the emerging countries of Asia.

The Earliest Australians

Experts are still uncertain when the Aborigines first reached Australia, or where they came from. The Aborigines kept no written records, nor is their history recorded in their myths and legends. Probably two distinct physical types lived in Australia—the Tasmanian Aborigines and the Australian Aborigines. Most anthropologists think that waves of Australian Aborigines reaching the continent between 15,000 and 20,000 years ago drove the Tasmanians south. The Tasmanians became isolated in Tasmania when land sank and created Bass Strait.

For further information about the earliest Australians, see ABORIGINES in this volume and its list of related articles.

Europeans Reach Australia (1606-1770)

The Unknown Southland. Europeans believed in the existence of a vast "southland", which they called *Terra Australis Incognita* (Unknown Southern Land), long before they proved that it existed. Historians are still uncertain about which Europeans first reached Australia. Some French maps of the 1540s showed a large land mass called *Iave la*

Grande (Greater Java) extending south of Java proper. Some historians argue that the maps are evidence that French or Portuguese seamen had reached Australia.

In 1569, the Flemish geographer Gerhardus Mercator charted a southland stretching from Tierra del Fuego, in southern South America, to New Guinea and Java, and then running south of the Cape of Good Hope, in Africa, across the Atlantic Ocean. See MERCATOR, GERHARDUS, in the main volumes.

First Sightings. Two Dutch sailors, Willem Jansz and Jan Lodewycksz, were probably the first Europeans to sight the continent. In March, 1606, they sailed 320 kilometres along Cape York Peninsula in the *Duyfken.* But they did not realize that they had reached the great southland. They believed that the coastline was part of New Guinea.

In 1606 also, Pedro Fernandez de Quiros, a Portuguese in the service of Spain, reached the New Hebrides, a group of islands that lie about 1,600 kilometres north-east of Australia's Queensland coast. He believed that the most southerly island of the group was the tip of a continent, which he named *Austrialia del Espiritu Santo* (Southland of the Holy Spirit). One of the captains of his fleet, Luis Vaez de Torres, then sailed westwards for the Philippines. In September, 1606, Torres passed through the strait between Australia and New Guinea that now bears his name. To the south, he saw "very large islands . . . inhabited by black people very stout and naked". But he did not realize that he had reached a continent.

In 1611, Hendrik Brouwer, a Dutch navigator, opened up a new route to the East Indies. He sailed due east from the Cape of Good Hope for 6,400 kilometres and then turned north. In 1616, Dirk Hartog, captain of the Dutch ship *Eendracht,* sighted the west coast of Australia. Hartog was following Brouwer's route, but had overshot the turn. He landed at what is now called Dirk Hartog Island, near Shark Bay, and left behind an inscribed metal plate. Another Dutch captain, Willem de Vlamingh, found the plate in 1697.

In 1627, Peter Nuyts also went too far east, and sailed along the south coast of the continent as far as Streaky Bay, on the eastern shore of the Great Australian Bight. Two years later, the Dutch trader François Pelsaert ran aground on the Houtman Abrolhos Islands, off the west coast. Pelsaert then sailed 800 kilometres northwards along the coast in a small boat before heading for Java.

New Holland. All these seamen, and others who had sighted the continent, gave unfavourable reports of it. The land was barren, and not profitable for trade. But Anthony van Diemen, Dutch governor of the East Indies, believed that there were riches in the south. In 1642, he commissioned Abel Tasman to discover them. Tasman sailed to Mauritius, and then south. He found nothing but ocean. He turned north and then east, until he struck land that he named Van Diemen's Land. But he did not work up the east coast of the island. Instead, he sailed east into the Pacific Ocean, and reached the west coast of New Zealand. Then he sailed north round New Guinea. Tasman had, in effect, sailed round Australia. Maps produced from information gained on his voyage linked as one great continent Arnhem Land, Van Diemen's Land, New Guinea, and *Nuytsland* and *Eendrachtsland,* names used at that time for the areas in southern and western Australia associated with Nuyts and Hartog. This continent was called *Nova Hollandia* (New Holland).

In 1621, the crew of an English ship, the *Trial,* sighted North West Cape. They were the first Englishmen to see the continent. They were wrecked in the Monte Bello Islands, but John Brooke and Thomas Bright lived to write their reports. In 1688, the scientist-pirate William Dampier, in the *Cygnet,* spent nine weeks on the north-west coast.

In 1766, the French government sent Louis de Bougainville to seek new lands to colonize. De Bougainville sailed westwards from the New Hebrides and came close to the coast of Queensland. But he did not land because of the dangerous reefs.

Cook's First Voyage. During the 1700s, Britain emerged as a leading sea and trading power. British navigators sailed the central and northern Pacific Ocean. In 1768, the Admiralty appointed James Cook to command a scientific expedition to Tahiti to observe the transit of the planet Venus. In secret instructions, the Admiralty told Cook to find and take possession of the southland.

From Tahiti, Cook sailed southwards and reached New Zealand. He spent six months sailing round the two islands and discovered that they were not part of a southern continent. He then decided to return to Britain by way of the East Indies, exploring the eastern coast of New Holland as he went. On April 19, 1770, he sighted the eastern coast. On April 28, Cook reached Botany Bay.

From Botany Bay, Cook sailed northwards along the coast to Cape York and into Torres Strait. On Aug. 22, 1770, at Possession Island, off Cape York, he took possession of the eastern coast from Cape Howe, in the south-east of the continent, to Cape York, naming the area New South Wales.

Later, Cook wrote in his journal: "this Eastern side is not that barren and Miserable Country that *Dampier* and others have described the western side to be. We are to Consider that we see this Country in the pure state of Nature, the Industry of Man has had nothing to do with any part of it and yet we find all such things as Nature hath bestow'd upon it in a flourishing state. In this Extensive Country it can never be doubted but what most sorts of Grain, Fruits, Roots &c[a]. of every kind would flourish here were they once brought hither, planted and cultivated by the hand of Industry, and here are Provender [fodder] for more Cattle at all seasons of the year than ever can be brought into this Country."

Further Information about the first Europeans to reach Australia is included in the following articles in the Australasian volumes:

Arnhem Land
Banks, Sir Joseph
Botany Bay
Bougainville, Louis de
Cook, James
Dampier, William
Endeavour
Furneaux, Tobias
Hartog, Dirk
Investigator

Jansz, Willem
Matra, James Mario
New Holland
Pelsaert, François
Quiros, Pedro Fernandez de
Tasman, Abel Janszoon
Torres, Luis Vaez de
Van Diemen, Anthony

The Beginnings (1788-1821)

The First Fleets. The British wanted to trade rather than to establish colonies. The loss of the American colonies in 1783 had convinced many people in Britain that colonization was unprofitable. New South Wales offered no prospect for trade, and the government did not rush to settle the continent.

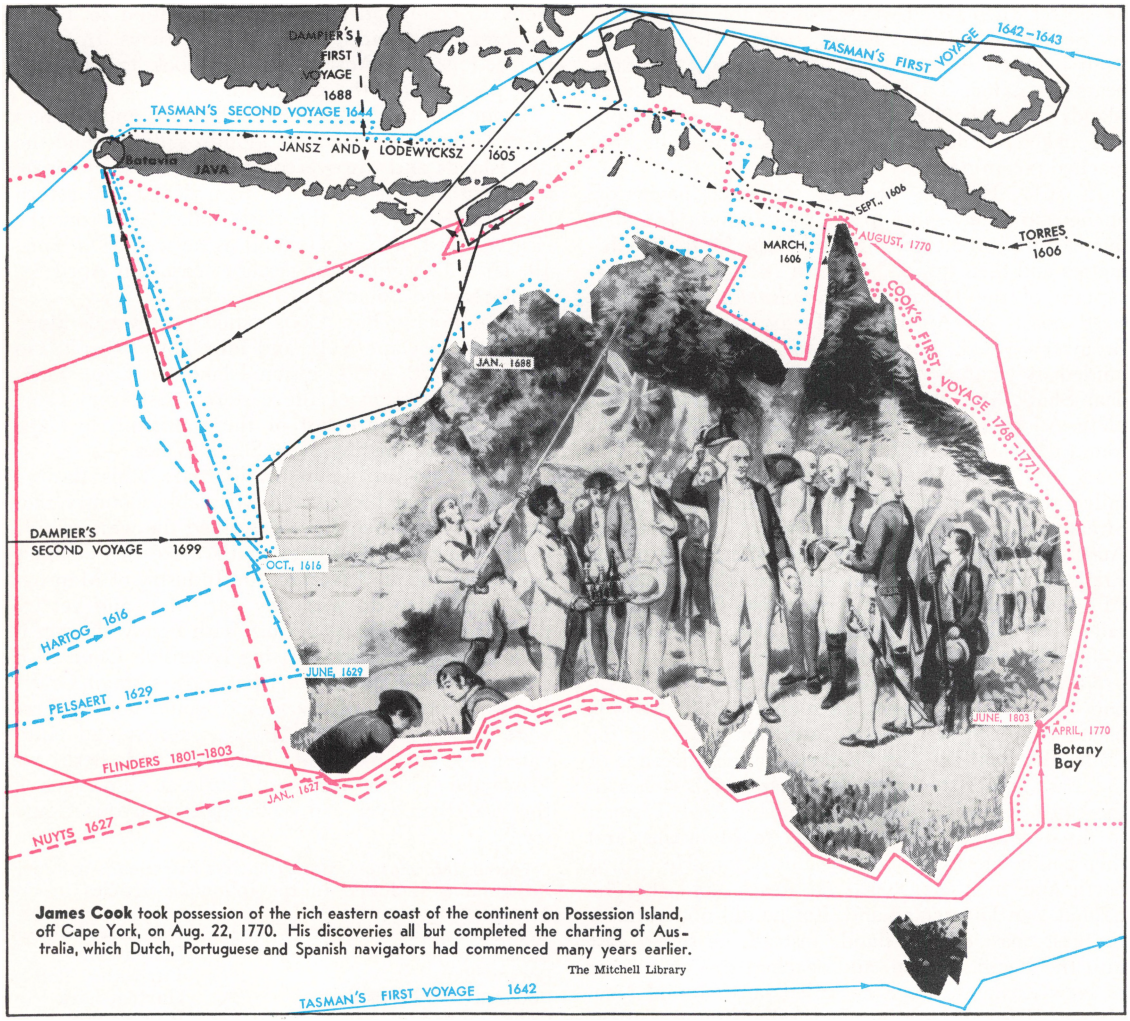
In 1779, Sir Joseph Banks, the naturalist who had travelled with Cook, recommended the establishment of a penal settlement at Botany Bay. The removal of prisoners to such a settlement is known as *transportation*. British jails and *hulks* (old ships used as prisons) were overcrowded. The government eventually accepted Banks's recommendations. It chose Arthur Phillip, a retired naval officer, as the governor of the settlement.

On May 13, 1787, the *First Fleet* sailed from Portsmouth. It consisted of the ships H.M.S. *Sirius* and H.M.S. *Supply,* six convict transports, and three store-ships. It carried 19 officers and 192 other ranks, with 30 wives and 12 children, and about 750 convicts. It also carried two years' supply of food, as well as seed and livestock to make the colony self-supporting.

The First Fleet anchored in Botany Bay on Jan. 20, 1788. The officers were disappointed with the site, and began seeking a better one. Phillip discovered Port Jackson and named Sydney Cove after the British Home Secretary, Lord Sydney. On Jan. 26, 1788, he officially proclaimed the new colony of New South Wales.

The colony did not become self-supporting. Much of the seed had spoilt on the voyage, and many animals had died. The land was not as good as

THE SEA DISCOVERY OF AUSTRALIA



James Cook took possession of the rich eastern coast of the continent on Possession Island, off Cape York, on Aug. 22, 1770. His discoveries all but completed the charting of Australia, which Dutch, Portuguese and Spanish navigators had commenced many years earlier.

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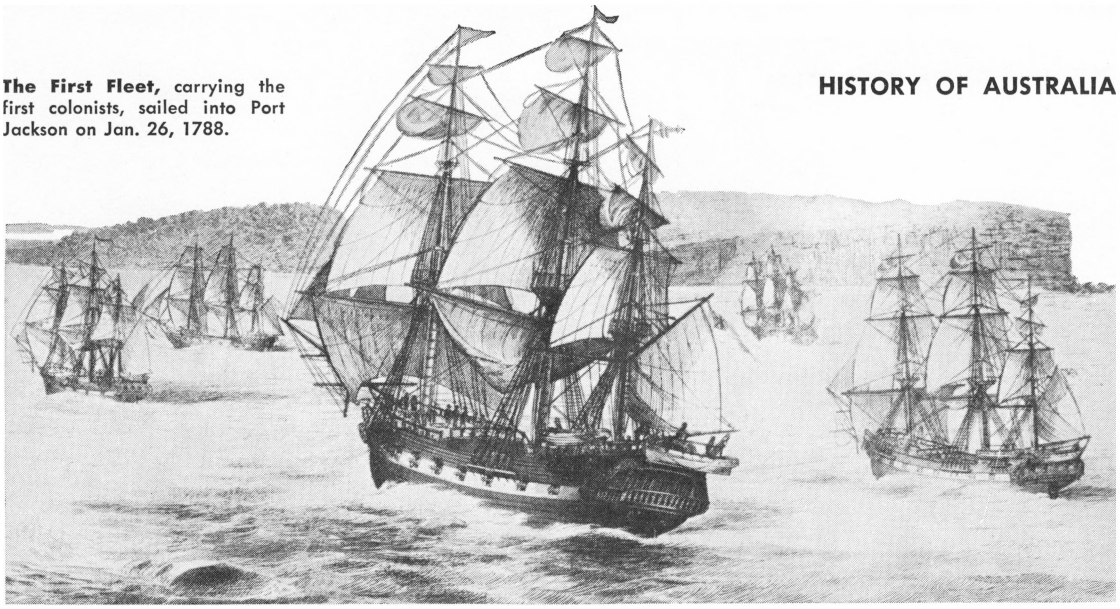

The First Fleet, carrying the first colonists, sailed into Port Jackson on Jan. 26, 1788.

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expected and the weather could not be depended upon. The convicts were unsuitable as pioneers. Most of them were professional criminals from London. They had no skills as farmers or craftsmen, and were mainly unwilling workers. In the first two years, the colonists nearly starved.

In February, 1788, Phillip ordered the establishment of a new settlement on Norfolk Island. He hoped that this settlement would supply Sydney with food and flax. But it contributed little to the stores of Sydney.

In June, 1790, the *Second Fleet* arrived, carrying supplies and 1,000 more convicts. About 250 convicts had died on the voyage. The fleet also carried the officers and men of the New South Wales Corps, a regiment formed specially for service in the penal colony. The supplies of the second fleet relieved the colony for a time. In 1791, the *Third Fleet,* with 1,900 convicts, and the first convict ship from Ireland, reached Sydney.

By 1792, Phillip had established government farms at Sydney, Parramatta, and Toongabbie. Convicts worked these farms. Phillip also made the first grants of land along the Hawkesbury River to officers and soldiers, and to hard-working convicts. But Phillip suffered constantly from ill-health. In 1792, he resigned and returned to Britain.

The Rum Corps. Francis Grose, commander of the New South Wales Corps, became acting governor. In 1794, William Paterson succeeded Grose. The two men gave their officers large grants of land. They encouraged them to take part in trading ventures. They also allowed them to hire convict labourers outside the working hours of the government farms, and to pay them in rum. Later, they assigned increasing numbers of convicts to work full time for landowners.

The officers quickly established a monopoly over trade, especially over rum. The corps became known as the *Rum Corps.* Its officers received more than 6,000 hectares of the best land, establishing a pattern of large land-holding that helped the colony to become self-supporting. But the British government was concerned about the abuses of the rum trade. In 1795, it commissioned John Hunter as the second governor and ordered him to restore discipline.

Hunter soon came into conflict with the officers, especially John Macarthur. Macarthur had arrived with the Second Fleet. He became a large landowner and began to experiment with sheep-breeding. Hunter was unable to check the power of the officers. Private land-holding continued to increase.

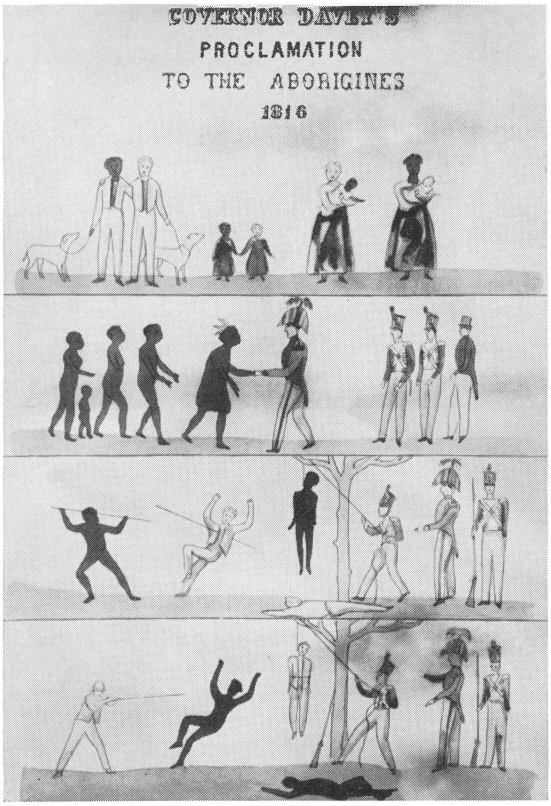
In September, 1800, Philip Gidley King replaced Hunter as governor. King had been in charge of the settlement at Norfolk Island for eight years. But, like Hunter, he was unable to curb the power of the officers. He quarrelled with Macarthur and sent him to Britain to face a military court. In Britain, Macarthur resigned his commission and persuaded the government that he should be given a large grant of land to breed sheep for wool.

Early Settlements. In 1798 and 1799, Matthew Flinders and George Bass explored the coast of Van Diemen's Land. From 1801 to 1803, Flinders sailed right round Australia, mapping the coast as he went.

Flinders reported favourably on the Port Phillip district, on the northern shore of Bass Strait. In 1803, King sent David Collins, with a party of marines and convicts, to establish a settlement at Port Phillip. In the same year, King sent John Bowen, with soldiers and convicts, to establish a settlement on the Derwent. A few months later, Collins abandoned Port Phillip and moved to the Derwent, where he took command. In February, 1804, he founded Hobart.

In November, 1804, King sent William Paterson to establish a settlement at Port Dalrymple. King gradually transferred the people of the costly Norfolk Island settlement to Van Diemen's Land.

The Rum Rebellion. In 1806, the British government appointed William Bligh as successor to King. Bligh had sailed with Cook, and survived the mutiny on H.M.S. *Bounty* in 1789 (see BLIGH, WILLIAM, in the main volumes). He set out to encourage



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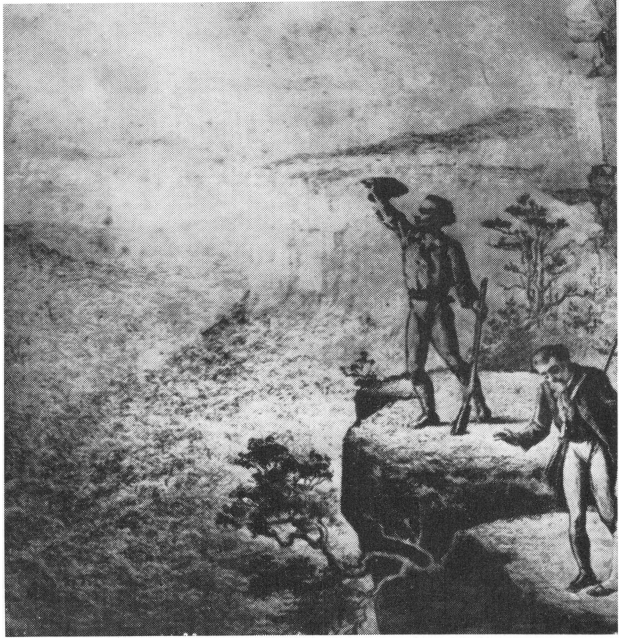

Explorers first crossed the Blue Mountains in 1813. After the crossing, other pioneers pushed beyond the coastal settlements to open up new farming lands.

Picture Proclamations, such as this poster, *left,* were nailed onto trees to explain the government's policy of friendship and justice towards the Aborigines.

agriculture and to suppress the rum trade. He acted strictly, and soon made enemies of the powerful officers, landowners, and merchants. On Jan. 26, 1808, George Johnston, commander of the New South Wales Corps, arrested Bligh, and proclaimed himself lieutenant-governor. Macarthur and other leading colonists supported Johnston. The incident became known as the *Rum Rebellion.* The senior officers of the corps who took over from Johnston refused to reinstate Bligh. In 1809, the British government sent Lachlan Macquarie to the colony to take command, with a regiment of soldiers.

Jail into Colony. By 1810, about 12,000 people lived in New South Wales, including Norfolk Island and Van Diemen's Land. About one-third of them were convicts. The rest included civil and military officers, former officials, the first few immigrants, and settlers, who included former convicts.

Many convicts gained pardons or served their terms, and chose to stay in New South Wales. These men were called *emancipists.* Some were landowners and merchants, but most of them worked for other people. The *exclusives* (wealthy free settlers) regarded the emancipists as social inferiors, and hostility developed between the two groups. Many other convicts gained *tickets of leave*—that is, they could work or own land, but had to report regularly to the authorities.

Under Macquarie's governorship, New South Wales changed greatly. His regiment replaced the corps, which was recalled to Britain. He believed that his job was to reform convicts. He was also a great builder, and began to shape Sydney as it is today. Macquarie allowed private employers only a limited number of convicts to work for them. Instead, he set many convicts to work on roads, bridges, and government buildings, many of which were designed by the convict architect Francis Greenway. Macquarie was generous in granting pardons, and considered that emancipists should have the same rights as other citizens.

Macquarie hoped to establish better relations between the settlers and the Aborigines. The two groups had clashed, and earlier governors had been powerless to prevent conflict. Macquarie encouraged the establishment of missions and tried to start schools for Aboriginal children. But he met with little success. In 1813, William Charles Wentworth, Gregory Blaxland, and William Lawson crossed the mountain barrier west of Sydney. When settlers began to move out across the mountains onto the Bathurst plains, new hostilities destroyed Macquarie's hopes of peace.

Macquarie's policy of encouraging small settlers and emancipists conflicted with new ideas in Britain about the colony. Sheep-breeding for wool had proved successful. Textile manufacturers in Britain considered that New South Wales might be a source for wool. The British government appointed John Thomas Bigge to inquire into conditions in New South Wales. Bigge landed in 1819. He suggested that convict discipline should be sterner. He also suggested that the government grant land to free settlers, and that convicts should supply all the labour they needed. Bigge considered that Macquarie was spending too much money on building. Macquarie offered his resignation in order to defend his actions. In March, 1821, the British government

accepted his resignation, and appointed Sir Thomas Brisbane to succeed him.

Further Information about people and events of the period from 1788 to 1821 is included in the following articles in the Australasian volumes:

Bass, George	Johnson, Richard
Baudin, Nicolas	King, Philip Gidley
Bigge, John Thomas	Kurnell
Blaxland, Gregory	Lawson, William
Bowen, John	Lord, Simeon
Collins, David	Macarthur, John
Davey, Thomas	Macquarie, Lachlan
D'Entrecasteaux, Bruni	New South Wales Corps
Flinders, Matthew	Norfolk Island
Free Settlers	Phillip, Arthur
Greenway, Francis Howard	Rum Rebellion
Hobart, Lord	Sirius
Hunter, John	Tench, Watkin
	Wentworth, William Charles

Opening Up the Land (1821-1851)

Exploration. In 1821, more than 40,000 people lived in eastern Australia. But they had settled only a few coastal areas. Then explorers began to search for new farming and grazing land.

In 1824, Hamilton Hume and William Hovell travelled south from the Sydney district and reached the river that was later called the Murray. They then crossed the rich pasture-lands of what is now northern Victoria and reached the western shore of Port Phillip Bay. In 1827, Allan Cunningham travelled north-west from the Hunter River, north of Sydney, and reached the Darling Downs. Two years later, Cunningham opened up a route from Moreton Bay (now Brisbane) to the Darling Downs. A penal settlement had been established at Moreton Bay in 1824.

As a result of the discovery of large rivers flowing west, many people came to believe that an inland sea existed in the continent. But, in 1829, Charles Sturt threw doubt on this theory. He sailed a whale-boat down the Murrumbidgee River, and then down a "broad and noble river" to the coast. This river was the one Hume and Hovell had reached. Sturt named it the Murray.

In 1836, Thomas Mitchell crossed the Murray River at Swan Hill and travelled south-west across "a country ready for the immediate reception of civilised man".

The Squatting Age. The population of the colony was growing rapidly. British markets demanded more wool. Until 1820, the governors of New South Wales and Van Diemen's Land had granted only about 700,000 acres of land. Between 1820 and 1831, colonists were granted almost 5 million acres of land. But this was still not enough. *Squatters* (farmers who occupied land illegally) set out to occupy land as soon as explorers discovered it. Sir Ralph Darling, governor of New South Wales, tried to confine settlement to the *Nineteen Counties* that surrounded Sydney. But the squatters poured over the limits of settlement.

In 1834, the Henty family moved from Van Diemen's Land to settle at Portland Bay. Two years later, Mitchell was amazed to find them already living in the area he was exploring. In 1835, two parties from Van Diemen's Land led by John Batman and John Pascoe Fawkner settled at Port Phillip. Batman selected the site of Melbourne, saying that it was "the place for a village".

In 1840, the first squatters reached the Darling Downs by an overland route. Other squatters joined them by travelling from Moreton Bay. By 1851, squatters occupied all the best land in New South Wales and Van Diemen's Land.

Land Policies. All land in Australia was *Crown land* (land belonging to the British government). In 1831, the Colonial Secretary, Lord Goderich, issued regulations requiring that land in Australia be sold by auction, at a minimum price of 5*s.* an acre. But the settlers could buy land only within the areas that the authorities had approved. The government considered that squatters on land outside these areas were illegal occupiers. It tried to have them removed. But the policy failed because of the settlers' need for more pasture-lands to support the growing numbers of sheep.

In 1836, the squatters achieved legal recognition. They could buy licences to pasture their stock beyond the authorized limits for £10 a year. For the next eight years, the squatters kept demanding more definite rights. In 1847, the British government allowed them to obtain leases of their *runs* (pasture-lands) for 14 years. The squatters could then buy the land if they wished.

By the mid-1800s, wool was the staple product of the colonies. The farmers of New South Wales and Van Diemen's Land supplied British manufacturers with nearly one-half of the wool they needed.

Transportation. Between 1820 and 1850, more than 100,000 convicts arrived in eastern Australia. Most female convicts went to a factory at Parramatta, where they spun and carded wool, or worked as servants. The government assigned most of the convicts to work for free settlers. Their masters provided them with food and clothing, and paid them small wages. If they were unsatisfactory workers, the government took them back, and put

many of them to work in chain gangs. If they committed crimes, they were flogged, or hanged, or sent to penal settlements at Norfolk Island, Moreton Bay, Macquarie Harbour, and Port Arthur.

One writer described these settlements as places of "inexpressible depravity, degradation, and woe". Many convicts tried to escape by land, or by capturing a vessel. Many tried to reach China, but only a few succeeded. Most of them were recaptured, or died. Some, such as "Bold Jack" Donahoe and Matthew Brady, became the first Australian *bushrangers* (see the section *Bushranging* later in this article).

Early Immigration. The growing country was seriously short of labour. At first, convicts and former convicts provided almost the whole of the work force. But, in Britain, many people had no work. They were becoming a drain on the government funds and charities from which they gained assistance. From 1831, the British government, influenced by the theories of Edward Gibbon Wakefield, the colonial reformer, decided to subsidize migration. From 1835, the government paid all expenses for certain migrants out of funds raised by selling lands in the colony. It also offered a *bounty* (payment) to settlers who promised employment to immigrants and arranged for their passage to Australia. John Dunmore Lang helped to select many Scottish migrants for New South Wales. Caroline Chisholm established a home for women immigrants to ensure that they found suitable employment.

Migration quickly changed the population of eastern Australia. By 1851, more than 335,000 people lived in New South Wales and Van Diemen's Land. Only 1 in every 10 of them was a convict.

The End of Transportation. The free settlers began to demand an end to transportation. In 1837, a committee of the British House of Commons accepted that "the two main characteristics of Transportation . . . are inefficiency in deterring from crime, and remarkable efficiency, not in reforming, but in still further corrupting those who undergo the punishment."

In 1840, the British government discontinued transportation to New South Wales. In 1848, it attempted to reintroduce the practice. The free settlers argued that transportation was harmful to their livelihood, because convicts were a source of cheap labour. The settlers were beginning to press for self-government. They argued that if transportation continued, self-government would be delayed. Hostile crowds greeted the convict ships *Hashemy,* in Sydney, and *Randolph,* in Melbourne.

Transportation to Van Diemen's Land continued, but under a new system. All convicts served a period in detention, but good conduct earned them probation and, eventually, pardon. In 1852, the British government finally abolished transportation to eastern Australia.

In 64 years of transportation, the British government sent more than 150,000 convicts to eastern Australia. Only a few of them returned to Britain at the end of their sentences. Most of them stayed in Australia. Some drifted into a criminal life, but more became law-abiding citizens.

Elizabeth Farmhouse, at Parramatta, built by John Macarthur in 1793, is the oldest existing house in Australia.

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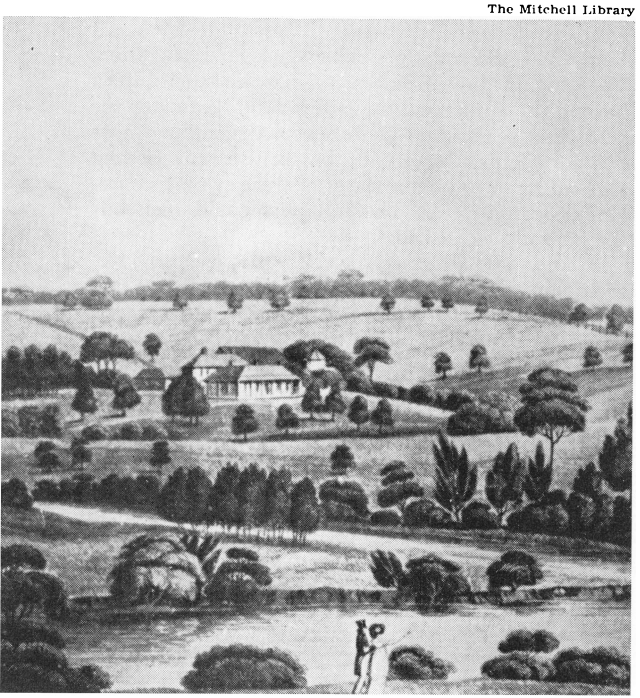

Further Information about people and events of the period from 1821 to 1851 is included in the following articles in the Australasian volumes:

Arthur, Sir George	Hovell, William
Australia Felix	Hume, Hamilton
Batman, John	Immigration and Emigration
Bourke, Sir Richard	Lang, John Dunmore
Brisbane, Sir Thomas	McMillan, Angus
Bushrangers	Mitchell, Sir Thomas Livingstone
Chisholm, Caroline	Oxley, John
Cunningham, Allan	Sorell, William
Darling, Sir Ralph	Squatters
Fawkner, John Pascoe	Sturt, Charles
Female Factories	Transportation
Henty (family)	Wakefield, Edward Gibbon

Other Settlements

The British government at first took possession of only the eastern half of the continent. But, in the 1820s, it again became concerned that rival European nations might lay claim to parts of Australia.

Western Australia. In 1827, James Stirling explored the Swan River and the area through which it flowed. He reported that it was "a spot so eligible for settlement, that it cannot long remain unoccupied". In 1828, the British government sent Charles Fremantle to establish a military post there, and to take possession of the rest of the Australian continent.

In Britain, the government agreed to grant the businessman Thomas Peel 250,000 acres of land near the Swan River if he succeeded in landing 400 immigrants before the end of 1829. Peel offered the land on attractive terms, and many immigrants bought from him.

The government appointed Stirling as lieutenant-governor of the Swan River Colony, which was officially proclaimed on June 18, 1829. A month later, Stirling chose the site of Perth.

Latrobe Library

Early Life in the colonies was often hard and crude. Artists' sketches give impressions of convict misery and of the difficulty of clearing land for settlement. Convicts often had to work in chain gangs making roads, *left*. The earliest settlers on the present site of Perth had to clear virgin bush to build their homes, *below*.

The Mitchell Library

The colony was slow to develop. It had only 6,000 people by 1850. Many landowners were more keen on *speculation*—that is, profiting from possible increases in the value of their land—than on cultivation. The settlers were too optimistic about their prospects. They had too little capital, labour was scarce, and they had little enthusiasm for hard pioneering. The land was not nearly as good as they had expected. By 1849, the colony was on the verge of ruin. The colonists asked the British government to declare Western Australia a penal colony. They wanted convicts for cheap labour, and government money flowing into the colony. The British government agreed, and the first convicts arrived in 1850.

South Australia. Wakefield claimed that the early failure of the Swan River Colony resulted from its "unsystematic" character. Sturt had earlier discovered "a magnificent river falling into the sea at Gulf St. Vincent". In 1830, businessmen in London negotiated with the government to test Wakefield's theory of "systematic colonization" by colonizing the area. They eventually raised enough capital to ensure that the new colony would cost Britain nothing. Their agreement with the government provided that a board of commissioners would manage land sales and migration, and the government would have charge of the administration of the colony. The South Australian Company bought land from the commissioners for sale and lease to its employees.

In 1836, the first colonists reached South Australia. William Light, the company's surveyor, selected Adelaide as the site for the settlement. John Hindmarsh, the governor, officially proclaimed the colony on Dec. 28, 1836. But South Australia also was slow to develop. Light was unable to survey all the land needed for agriculture. Settlers were reluctant to leave the town, and speculation in land was widespread. Many townspeople were unemployed.

In 1838, George Gawler replaced both the governor and the commissioner. Gawler speeded up the survey of the land, and spent large sums of money on public works to provide jobs for the unemployed. But the board of commissioners refused to pay for the work. The British government recalled Gawler and took over the colony's debts. George Grey became governor of the colony. Grey's policy forced people out of Adelaide and onto the land. Wool production increased rapidly. Wheat production increased more rapidly than in the other colonies.

In 1845, prospectors discovered copper at Burra, north of Adelaide. Other discoveries followed. These mineral riches attracted many immigrants. By 1850, more than 60,000 people lived in South Australia. In 1863, the colony took over the administration of the Northern Territory.

Later Exploration. South Australian colonists, like those of eastern Australia, were eager for new pastures. They also hoped to open up a route for transporting stock between Adelaide and the Swan River. Edward John Eyre explored north from the settlement, but had to turn back when he reached deserts. Later, Eyre set out to cross the continent from east to west. In a five-month journey, much of it across waterless desert, Eyre established that no practicable stock route existed.

In 1844, Sturt set out from Adelaide to reach the centre of the continent. He was still searching for an inland sea. But he was unable to cross the Simpson Desert. He eventually returned to Adelaide to report his failure.

Further Information about the settlements mentioned in this article is included in the following articles in the Australasian volumes:
Australind Eyre, Edward John

Gawler, George
Hindmarsh, Sir John
Light, William
Peel, Thomas
Stirling, Sir James
Swan River Colony

Colonial Government and Society

In the first years of the penal settlement, the governors had absolute powers. They received their instructions directly from the British government. There was no trial by jury. The governors appointed courts to hear criminal and *civil* (non-criminal) cases. But, as the colony developed, wealthy landowners wanted the right to control their own affairs.

The political issues that people in the colony felt most strongly about were the right to self-government and the status of emancipists. The principal political division in New South Wales was between the emancipists, led by William Charles Wentworth, and the exclusives, led by John Macarthur. The emancipists were the first to demand *representative government*—that is, that the people of the colony should have representatives of their own class in the government. They claimed that, having served their sentences, they should enjoy the legal status of free men. Emancipists and exclusives alike protested against the judicial system, and demanded trial by jury.

The Act of 1823. The British government met some of the demands of the colonists when it passed the New South Wales Judicature Act of 1823. The act provided for trial by jury in certain civil cases. It also allowed New South Wales to have a *legislative* (law-making) council. The council consisted of five to seven members who were nominated by the governor. The council could only advise the governor, but it was the first step towards self-government for the colony. The act also authorized the creation of a new colony in Van Diemen's Land, separate from New South Wales, and provided for a nominated legislative council for the new colony. The new colony was proclaimed in 1825.

Towards Representative Government. In 1828, the British government granted further concessions to the colonists. An act enlarged the legislative councils of New South Wales and Van Diemen's Land, and extended their powers. The governors could no longer act without the consent of the councils. The councils now had the power to pass laws providing for trial by jury in civil cases other than those mentioned in the 1823 act. In 1830, the councils gained the power to pass laws providing for trial by jury in criminal cases. In 1839, the British government also transferred the power of the administration of justice to them.

The emancipists were dissatisfied because the exclusives dominated the legislative councils. The middle and working classes in New South Wales supported the emancipists. The British government introduced a measure of representative government in 1842. The government passed an act providing that the colony's legislative council should have 36 members, 24 of whom were to be elected. Only property-owners could vote in the elections for these members. The British government limited the powers of the governor still further, but he kept control over the colony's finances. The government kept control over Crown lands. The act did not apply to Van Diemen's Land, because convicts were still being sent there.

Western Australia had received a constitution at its foundation in 1829. This constitution provided for the establishment of a nominated legislative council when the colony became self-supporting.

South Australia also had received at its foundation a constitution providing for a nominated legislative council. In 1839, the colonists asked the British government to provide for the election of members. In 1842, the British government agreed to this demand in principle, but said that the colony would have to become self-supporting first.

In the Port Phillip district, the colonists objected strongly to being governed from Sydney. From 1840 onwards, they petitioned the British government on many occasions, asking that the system of government should be changed. They argued that this system was ineffective because of the size of their district, its distance from Sydney, and its general prosperity. They ridiculed the system by electing men who would not, or could not, sit on the council to represent them.

Towards Self-Government. Throughout the colonies, men wanted nothing less than full self-government. The land policies of the British government no longer worked in practice. The colonists wanted the right to determine land policies.

The British government passed the Australian Colonies Government Act in 1850, and proclaimed it in 1851. The act provided that the Port Phillip district should be separated from New South Wales. The new colony was to be called Victoria. The act provided that Victoria, South Australia, and Van Diemen's Land should have elected legislative councils similar to that of New South Wales. It empowered each of these councils to amend the constitutions of their colonies. Effective self-government was near. The colonists had only to decide what kind of institutions of government they would have.

Colonial Society. The Australian colonies had changed from penal settlements into free and self-governing communities. The colonists had carried with them British ideas and institutions. But, in Australia, these ideas and institutions became changed. Australia did not have a traditional ruling class like that in Britain. Men were more equal in their positions in society. People judged a man on his ability and his achievement rather than on his birth.

Not all children could attend school, because schools were few. Many children were taught in their own homes by tutors, many of whom were convicts. Some children attended Church schools paid for by the government. But students seeking higher education had to go to Britain. The colonies had few outstanding creative writers. Most painters produced detailed pictures of local scenes or painted romantic pictures for overseas buyers. But life in the colony had many advantages. The colonists regarded their new home as a healthy one. Their children seemed taller, heavier, and better fed than children in

Britain. They could enjoy outdoor sports almost throughout the year.

Further Information about early government in the colonies is included in GOVERNMENT OF AUSTRALIA (History), in this volume, and in the *History* sections of the state articles, in the other Australasian volume.

Gold (1851-1861)

Early Discoveries. The gold rushes of the 1850s followed many earlier reports of the discovery of gold. In 1815, a convict who was working on the first road over the Blue Mountains showed his overseer gleaming specks of metal that he claimed were gold. But the overseer said they were filings from a brass buckle, and ordered him to be flogged. In 1823, a surveyor named James McBrien found specks east of Bathurst, 160 kilometres west of Sydney. The Polish explorer Paul Strzelecki also found gold near Bathurst, but he did not consider that there was enough to make mining worthwhile. In 1844, W. B. Clarke, a clergyman and amateur geologist, showed a specimen of gold to George Gipps, governor of New South Wales. Gipps is reported to have said: "Put it away, Mr. Clarke, or we shall all have our throats cut."

The Gold Rushes. News of the wealth of the California gold-fields reached Australia in 1849. Sir Charles Fitz Roy, then governor of New South Wales, commissioned a geologist to carry out a survey for the Crown. In February, 1851, Edward Hammond Hargraves, who had formerly dug for gold in California, announced that he had found a gold-field near Bathurst. The field was later called Ophir. Within a few weeks, hundreds of *diggers* rushed to the field.

Fitz Roy tried to stop the rush. He wanted to keep men from giving up their jobs to seek gold and in this way reducing the colony's labour force. He called in police and soldiers to stop the rush, but they did not succeed. Then Fitz Roy proclaimed that no one could dig for gold unless he bought a monthly licence.

In Victoria, a committee offered 200 guineas for the discovery of gold in the state. In July, James Edmond announced that he had found gold at Clunes, in Victoria. Other prospectors found gold in Victoria—at Buninyong, Ballarat, and Mount Alexander, and later still at Castlemaine and Bendigo.

Thousands of men went to the new gold-fields. Seamen left their ships, blacksmiths their forges, and shepherds their sheep. Policemen resigned their jobs to join the rush. Charles La Trobe, lieutenant-governor of Victoria, wrote: "The whole structure of society and the whole machinery of government is dislocated." In Van Diemen's Land, Sir William Denison, the governor, watched the people "getting mad and flocking away in the steamers to Melbourne in search of gold".

When news of the Australian discovery reached Europe early in 1852, the frenzy increased. Within 10 years, more than 500,000 people from the British Isles—about 1 in 50 of the islands' population—left for the Australian colonies. People seeking gold arrived in their thousands from Canada, China, the United States, and most European countries.

In the early days of the rushes, men searched the beds of creeks and the surface of the soil for easily won alluvial gold. They *panned* or *cradle sifted* the sand (see GOLD [How Gold Is Mined] in the main volumes). They kept the heaviest fragments and threw away the *tailings* (waste). Later, gangs of Chinese workers sifted the tailings. Soon, alluvial gold became scarce. The diggers moved from the first fields to other fields in Victoria, such as Beechworth, Creswick, Daylesford, Dunolly, Maldon, Maryborough, and Ovens River.

In 1853, syndicates of miners at Ballarat began to dig deep to find gold in the beds of old rivers that had been buried by volcanic activity. The diggers sometimes sank shafts 30 to 45 metres. They usually struck water, and the shafts had to be baled out or pumped dry before the mines could be worked. They often had to dig for six months or more to reach the beds.

The Eureka Stockade. The Victorian government, like the New South Wales government, tried to enforce a system of licences for miners. In 1851 and 1853, surface miners protested against this system, which they considered unjust. In 1854, many of the deep-shaft miners at Ballarat burnt their licences and refused to take out new ones. Some of them joined the Ballarat Reform League, which had

Self-Government was the major issue in the colonies by 1850. Colonists of the Port Phillip district held many rallies to demand separation from New South Wales.

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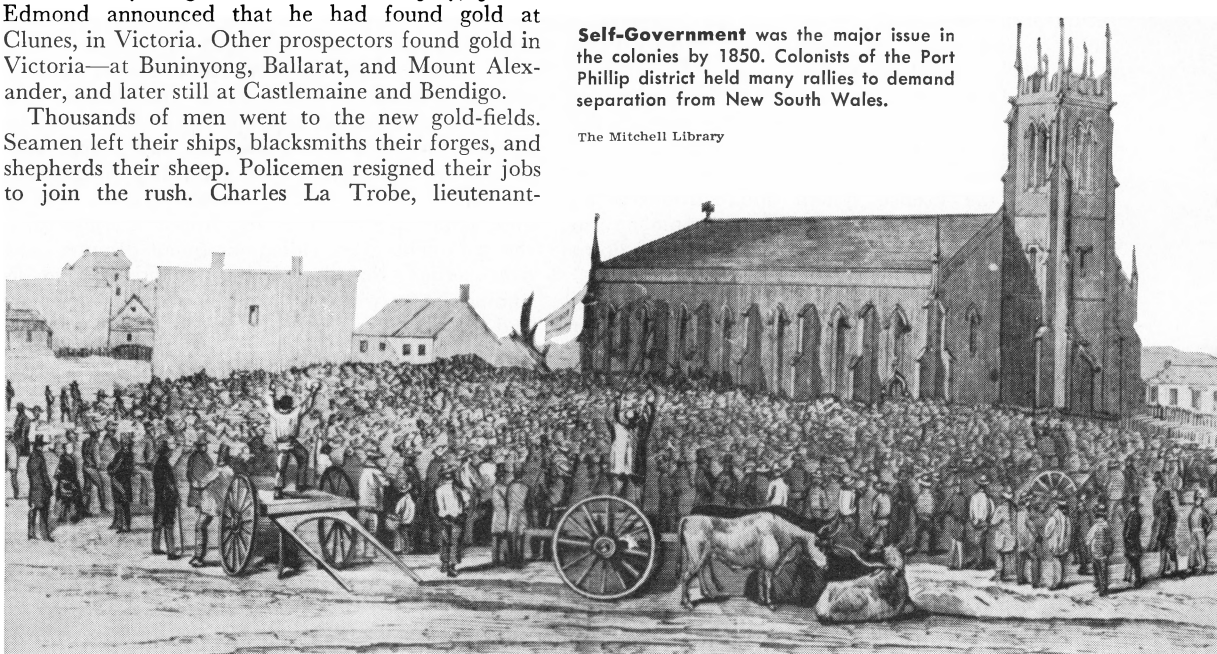
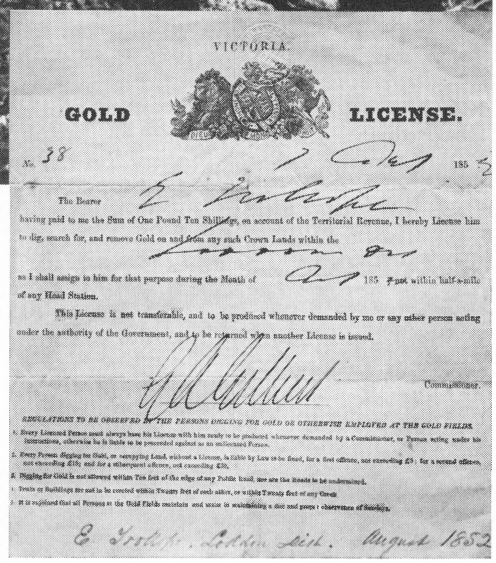




VICTORIA.

GOLD LICENSE.

No. 38

The Bearer

having paid to me the Sum of One Pound Ten Shillings, on account of the Territorial Revenue, I hereby License him to dig, search for, and remove Gold on and from any such Crown Lands within the

as I shall assign to him for that purpose during the Month of 185 not within half-a-mile of any Head Station.

This License is not transferable, and to be produced whenever demanded by me or any other person acting under the authority of the Government, and to be returned when another License is issued.

Commissioner.

REGULATIONS TO BE OBSERVED BY THE PERSONS DIGGING FOR GOLD OR OTHERWISE EMPLOYED AT THE GOLD FIELDS.

1. Every Licensed Person must always have his License with him ready to be produced whenever demanded by a Commissioner, or Person acting under his instructions, otherwise he is liable to be prosecuted against as an unlicensed Person.

2. Every Person digging for Gold, or carrying Land, without a License, is liable by Law to be fined, for a first offence, not exceeding £5; for a second offence, not exceeding £10; and for a subsequent offence, not exceeding £20.

3. Digging for Gold is not allowed within Ten feet of the edge of any Public Road, nor are the Roads to be undermined.

4. Tents or Buildings are not to be erected within Twenty feet of each other, or within Twenty feet of any Creek.

5. It is required that all Persons at the Gold Fields maintain and assist in maintaining a due and proper observance of Sunday.

E. Trotter, Lithn. Lith. August 1852

The Mitchell Library; Australian News and Information Bureau

Easily Won Gold soon became scarce on the gold-fields. Prospectors had to dig deep shafts to find gold. The miners became bitter about government demands that they buy gold-mining licences, *right*.

radical political policies. Provoked by police at the gold-fields, the diggers eventually armed themselves and built a stockade, called the Eureka Stockade. On the afternoon of Saturday, Dec. 2, 1854, more than 1,000 diggers were in the stockade, prepared for an attack by government troops. But a rumour spread that the troops would not attack that night, and most of the men left the stockade to sleep in their tents. Only 150 men, armed with guns and pikes, were in the stockade when the troops arrived at dawn on Sunday. In the skirmish that followed, 5 soldiers and about 30 miners were killed. Peter Lalor, the miners' Irish leader, escaped. The soldiers captured 13 miners and sent them to Melbourne for trial. But public opinion was on the side of the diggers, and the jury refused to convict them.

The following year, the Victorian government abolished the licence system and introduced an annual *miners' right* fee of £1. The government also allowed the diggers to have local courts to lay down conditions of mining for particular districts.

Much of the gold that remained was embedded in quartz. Early diggers had tried to separate it, but could not profitably do so by hand. At Clunes in 1856, the Port Phillip Company engaged diggers to mine gold-bearing quartz. The company installed the first crushing plant in Australia. Later, miners left Victoria for gold-fields at Gulgong and Kiandra, in New South Wales, and at Charters Towers, Gympie, and Palmer River, in Queensland.

Life on the Diggings. Men reached the gold-fields with what they could carry on their backs—or, if they could afford it, what they could persuade *teamsters* to cart for £10 a ton. They bought their food from *stations* at high prices. They slept in the open or in tents. Later, butchers and general-store keepers set up shops to sell food and other goods, but still at high prices. Bushrangers often held up and robbed people returning from the *diggings,* as the gold-fields were called. Frequent disputes arose over *claims*—that is, pieces of land allotted for mining. There were not enough police because many had gone mining. In many places, miners enforced their own law.

Few diggers were successful. Some, such as John Deason, made fortunes. Deason found the *Welcome Stranger* nugget just below the surface of the ground at Mount Moliagul in 1869. It was the world's largest nugget. It weighed 2,284 ounces, and was sold for £9,436. But probably only one independent digger in every four made more than the

wages he had earned before he began mining. Most of them earned little or nothing for their efforts.

The Importance of Gold. Gold discoveries led to an important increase in the colonies' population and wealth. Melbourne grew rich. By 1871, more than 200,000 people lived in the city. Successful diggers went to Melbourne on spending sprees. They bought expensive clothes, rode in fine carriages, and ate and drank expensively in hotels and cafés.

Between 1851 and 1861, the population of the Australian colonies rose from about 440,000 to more than 1,170,000. These people provided a large new source of workers, as well as new customers for local products. The richest gold-fields were in Victoria, and this colony had the most people and the most wealth. But the neighbouring colonies benefited by exporting food to the Victorian gold-fields.

The gold-fields were centres of radicalism, although only a few of the miners concerned themselves with politics. Some historians consider that democracy in Australia dates from the Eureka rebellion. Later generations of radicals looked back to the rebellion for inspiration. Men of radical opinions gained representation in the colonial parliaments. The parliaments passed laws giving every man the right to vote and to stand for parliament. The turmoil of the gold-fields made ordinary men more aware of politics.

Many Chinese worked on the gold-fields, and many of the other miners objected to their presence. The Chinese lived and worked apart from the other miners. Many of them worked for employers in China. In 1857, diggers rioted against the Chinese in Ovens Valley. In 1861, others rioted at Lambing Flat, in New South Wales. In 1855, the Victorian government tried to restrict the entry of Chinese by imposing poll taxes on Chinese arriving in the colony. But many Chinese landed in South Australia and walked overland to Victoria.

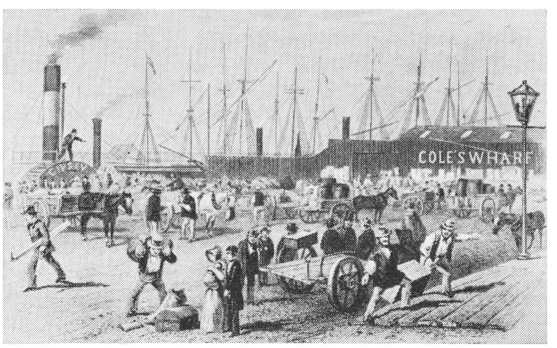
Further Information about people and events concerned with the discovery and mining of gold during the period from 1851 to 1861 is included in the following articles in the Australasian volumes:

Denison, Sir William Thomas
Diggers
Eureka Stockade
Gipps, Sir George
Gold-Mining
Hargraves, Edward Hammond
Lalor, Peter
La Trobe, Charles Joseph
Ophir
Strzelecki, Sir Paul Edmund de
Thomson, Sir Edward Deas

Colonial Development (1851-1890)

Self-Government. The British government retained control over land and the civil service, even though the colonies had their own constitutions. It could also *veto* (refuse consent to) colonial laws. The colonies protested that they did not have fully responsible self-government.

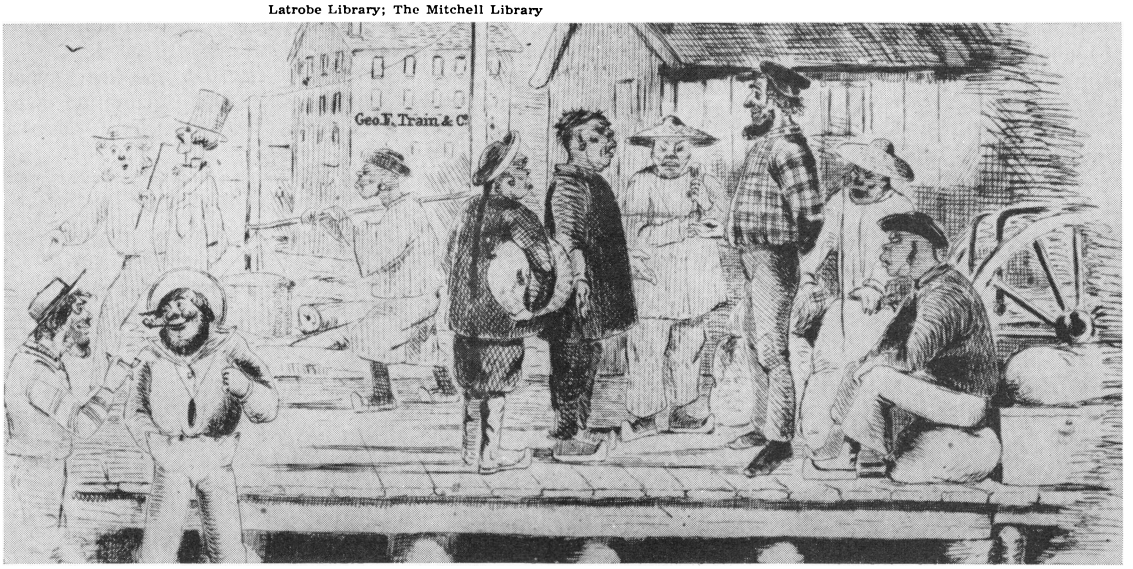
In 1853, the Colonial Secretary, Sir John Pakington, told the colonies that the British government had agreed to responsible self-government. During the next seven years, the colonies, except Western Australia, established the basis of the Australian political system. In 1856, Van Diemen's Land be-



Victoria grew rich from gold. Immigrants flocked into busy Melbourne to settle in the prosperous colony.

Chinese Immigrants were resented by the colonists. In humour, cartoonists made them objects of ridicule.

Latrobe Library; The Mitchell Library



came Tasmania. The British government declared Queensland a separate colony in 1859.

The new constitutions provided for *bicameral* legislatures—that is, legislatures consisting of two houses. In New South Wales and Queensland, the Crown nominated the members of the upper houses. In Victoria, South Australia, and Tasmania, the members of the upper houses were elected, but only wealthy people could vote. Members of the lower houses were also elected by property-owners, but a person did not need to own so much property before he could vote for these offices. By 1859, all men could vote in elections, except in Tasmania. Between 1870 and 1900, all colonies introduced payment for members of parliament. Between 1894 and 1909, women received voting rights. In 1890, the British government allowed Western Australia to have responsible self-government.

Unlocking the Land. Thousands of people who had made a living in the gold-fields had to look for new jobs as alluvial gold became scarce. A few of them worked in local factories or farmed their own land. But squatters held most of the best land on long leases. Many people joined in demands for the "unlocking of the land". City politicians, who wanted to weaken the power of the squatters, supported the movements.

In 1861, the 14-year leases given to squatters in 1847 expired. Between 1860 and 1862, parliaments in New South Wales, Victoria, Queensland, and Tasmania introduced new land policies. They provided that any person could *select* a small area of Crown land, including land under *pastoral lease,* and could then buy it by instalments. The *selector* had to live on his land and work it. But the experiment did not succeed. Economic conditions were not suitable for the growth of agriculture, and the squatters had more capital than the selectors. The squatters bought as much land as they could and used *dummy selectors* (people who took up land on their behalf), and in this way were able to keep possession of much of the land.

One of the results of selecting was confusion over land titles. Under British law, a person had to have a deed to prove his ownership (see DEED in the main volumes). But land changed hands so rapidly in the colonies that the deed could easily be lost. In 1857, Robert Torrens, premier of South Australia, introduced a system by which records of land ownership were kept in a central register. People could prove ownership by producing a certificate that recorded the entry in the register. The South Australian parliament adopted the *Torrens System* (see TORRENS SYSTEM in the main volumes). Later, the other colonies and many other countries adopted the system.

Bushranging. In country areas where small selectors competed with squatters for the land, people experienced intense social unrest. This unrest affected especially southern New South Wales and northern Victoria. As a result of this unrest and general lawlessness, men became *bushrangers.* They roamed the Australian countryside plundering mail coaches, gold escorts, and homesteads. The period of the bushrangers lasted from 1860 to 1880. The most notorious bushrangers were the gangs led by Ben Hall and Frank Gardiner in New South Wales and by Ned Kelly in Victoria. Many bushrangers were popular among many of the selectors, but the authorities finally killed or caught all of them. Ned Kelly was the last of the bushrangers. On Nov. 11, 1880, he was hanged in Melbourne jail.

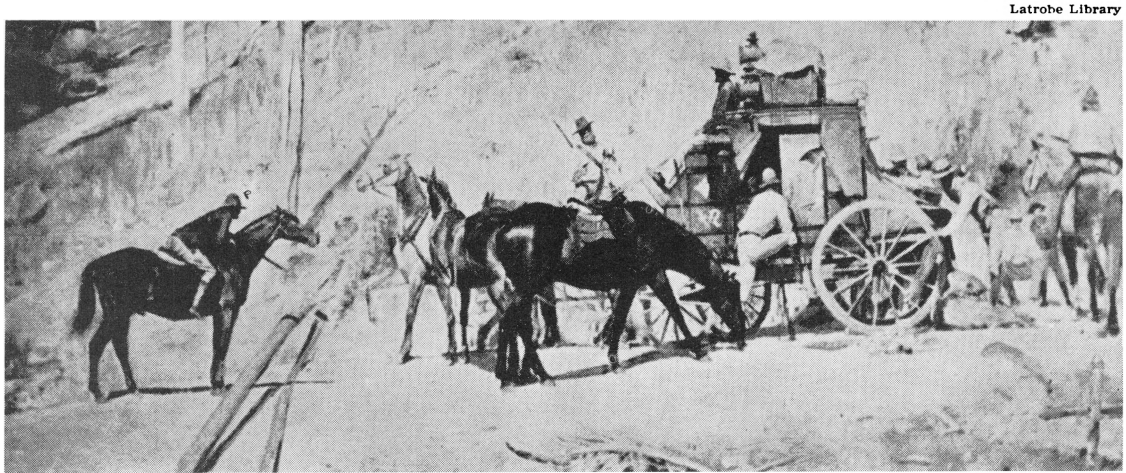
Industries of the Land. The colonists of South Australia grew wheat as an important crop from the early days of their settlement. Between 1860 and 1880, the South Australian wheat crop was greater than that of all the other colonies together.

From the 1880s, wheat growing became more profitable as a result of greater demand, improved farming techniques and new strains of wheat, better transport, and new agricultural machinery. More farmers in northern Victoria and southern New South Wales began to grow wheat. Wool production expanded even faster. Between 1860 and 1890, the number of sheep in Australia increased from about 20 million to about 100 million.

During the 1880s, agriculturists began experimenting with irrigation schemes along the Murray River. The Victorian government encouraged the Chaffey brothers in experiments at Mildura, which enabled farmers to grow fruit in the area.

In 1863, Louis Hope started the first sugar plantation in Queensland. By 1890, plantation owners were producing about 50,000 tons of sugar a

Bushrangers once roamed the Australian countryside, *bailing up* (stopping and robbing) coaches and their passengers. They were often carefree and courteous, as shown in this painting by Tom Roberts.
Latrobe Library



year, much of which was exported. Queensland planters used *kanakas* (labourers from the Pacific islands) to work their plantations. Ships' crews, known as *blackbirders,* forced or lured the kanakas aboard ships and transported them to Australia. Many people demanded the abolition of this practice, which they referred to as a "slave trade".

Mining also developed rapidly. Prospectors discovered gold in Queensland, the Northern Territory, and Western Australia. In 1883, prospectors discovered great deposits of silver, lead, and zinc in Tasmania and at Broken Hill, in New South Wales. In the 1860s, businessmen opened new copper mines in South Australia. By 1890, miners in New South Wales were digging almost 3·6 million tonnes of coal a year, mainly for ships and railway locomotives.

Transport and Communications. As these industries and trade grew, transport improved. In 1852, the first steamship from London reached Sydney. But, for many years, sailing-ships continued to carry most of Australia's exports.

On land, bullock *drays* (carts) carried goods, and passengers and mail travelled in coaches run by Cobb and Co. In 1870, this company was using 6,000 horses, and its coaches travelled about 45,100 kilometres a week. But trains gradually replaced both drays and coaches. In 1854, the first Australian railway connected Melbourne and Port Melbourne. Early construction of railways was slow and expensive, and services were unprofitable. By 1890, the colonies had built 16,000 kilometres of railways. Each colony wanted to ensure that the trade from its interior flowed through its own capital city. Each adopted its own gauge, and the principal lines radiated from the capital.

During the 1860s, workers completed telegraph links between the capital cities. In 1872, the Overland Telegraph linked Adelaide and Darwin. It connected with a cable that linked it to Britain. In 1876, another cable linked Sydney and New Zealand.

Further Exploration and Development. Early explorers had opened up only the southern and eastern parts of Australia. Between 1844 and 1876, people began to explore the rest of the continent.

In 1844, the German explorer Ludwig Leichhardt explored the vast area from the Darling Downs to Port Essington, the military post on the western tip of Arnhem Land. Leichhardt considered the area "excellent country, available, almost in its whole extent, for pastoral [grazing] purposes". During a second expedition, in 1848, Leichhardt and his party disappeared. In 1861, Robert O'Hara Burke and William Wills made the first crossing of the continent from south to north. The expedition ended in the death of the two explorers, who arrived back at their base camp only a few hours after their reserve party had withdrawn. A third man, John King, survived with the help of Aborigines.

In 1860, starting from Adelaide, John McDouall Stuart reached the centre of the continent. In 1862, on his final expedition, he succeeded in crossing the continent from south to north. He reported good water and abundant pastures in the north.

During the 1870s and 1880s, farmers drove their cattle into the central and northern regions of the continent. But the cattle industry in the north did not prosper. The grasses and climate were unsatisfactory and markets were too far away.

The exploration of the continent was almost completed when explorers crossed the Western Australia desert regions. Between 1872 and 1876, Ernest Giles, John Forrest, and P. E. Warburton explored the regions, suffering great hardships. But they discovered nothing of commercial value to the rapidly growing colonies.

Manufacturing. In Victoria, manufacturing industries developed rapidly, because the demand for goods was growing and, after the gold rushes, so was the number of workers available to make them. Victoria became the first colony to introduce tariffs as protection for local industries. New South Wales, where the farmers were the most important section of the community, did not impose tariffs. South Australia and Tasmania followed Victoria in introducing tariffs.

By 1890, about 9,000 factories throughout the colonies employed more than 133,000 workers. About two out of every five of these people worked in Victoria.

Immigration. The colonial governments continued to subsidize migration. Between 1860 and 1890, more than 300,000 *assisted migrants* (migrants who had received cash grants towards their fares) reached Australia. The population trebled, rising from about 1 million to more than 3 million people. Employers favoured assisted migration, because they needed more people to work in their factories. Workers opposed it, because they thought it was a threat to their living standards. When labour was scarce, they could demand better working conditions. They were especially hostile towards Chinese labourers, and to the kanakas on the Queensland canefields. In 1878, seamen went on strike because Chinese were employed on Australian ships. Workers throughout Australia supported the seamen. In 1885, the Queensland government restricted the use of kanaka labour. Between 1881 and 1888, all the colonial governments except that of Western Australia passed laws to restrict Chinese immigration. They had begun the *White Australia* policy.

The Labour Movement. Organizations of workers had existed before the gold rushes, but they were concerned mainly with providing for their members in case of illness or unemployment. After the gold rushes, skilled craftsmen began to form trade unions. In 1855, building trades workers in Melbourne and Sydney succeeded in getting an 8-hour day. The craftsmen's unions joined together in trades councils. From the late 1870s, other workers began to form organizations. These workers included seamen, wharf labourers, shearers, miners, and workers in the new manufacturing industries. During the prosperous 1880s, these unions succeeded in reducing hours of work and increasing wages.

Education. Churches established the first schools in the colonies. The governments granted them financial assistance. In New South Wales, in 1848,

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Irrigation Schemes during the 1880s turned vast tracts of waste land along the Murray River into ideal farming areas.

the government established the first state school. But it continued to finance Church schools in the colony. This *dual system* continued in all the colonies except South Australia until the 1870s. The South Australian government ended aid to Church schools in 1851.

The dual system did not work satisfactorily. The Churches established schools only in the larger towns, and these schools competed with one another. Fewer than half the children of school age were receiving proper education. Between 1872 and 1885, other colonial governments ended aid to the Church schools. They made education compulsory for all. During the 1880s, authorities throughout Australia instituted state-supported technical schools. Melbourne and Sydney gained their own universities in the 1850s. Adelaide University was founded in 1874.

Foreign Relations and Defence. The British government conducted the foreign affairs of the whole British Empire. The Australian colonies relied on the Royal Navy for defence. But they became concerned by growing French, German, and Russian interests in the Pacific Ocean.

On April 4, 1883, the Queensland government took possession of the south-eastern part of the island of New Guinea in order to prevent its possible occupation by the Germans. The British government had earlier refused colonial requests to take possession of the island. At first Britain rejected Queensland's action. But, in 1884, it declared a protectorate over British New Guinea (now Papua).

The Growth of Cities continued. Parliament houses and government offices, libraries, art galleries, museums, hospitals, and universities were built. City authorities introduced tramways, gas lighting, sewers, and suburban railways. By 1890, most people lived in the capital cities.

The Australian Way of Life. A distinct Australian culture also began to grow. Poets, novelists, and painters began to depict the Australian scene. Drama, music hall performances, and opera were the main forms of entertainment. Australian cricket teams began to play test matches against England. Horse-racing grew in popularity. In 1861, the Melbourne Cup was first run. Australian Rules football developed into a major sport.

The Boom of the Eighties. The 1880s were years in which people had great confidence in the future of Australia, and business boomed. Overseas investments in the country trebled. British investors poured money into both private companies and government schemes. The Australian governments borrowed £90 million between 1878 and 1888. Banks and finance companies lent money freely.

Further Information about people and events concerned with colonial development from 1851 to 1890 is included in the following articles in the Australasian volumes:

Arts of Australia
Blackbirders
Burke, Robert O'Hara
Bushrangers
Chaffey (family)
Cobb and Co.
Education in Australia
Forrest (family)
Giles, Ernest
Gregory (family)
Hall, Ben
Kanakas
Kelly, Ned
Kennedy, Edmund
Leichhardt, Ludwig
Literature of Australia
Lowe, Robert
Mort, Thomas Sutcliffe
Papua New Guinea (History)
Responsible Government
Squatters
Stuart, John McDouall
Torrens, Sir Robert
Trade Unions
White Australia Policy
Wills, W. J.

The Birth of the Nation (1890-1901)

Depression. In 1888, New South Wales experienced a severe drought. Prices of wool and wheat fell, and British investors stopped financing Australian schemes. Government funds ran low, and public works programmes came to a halt. The shortage of funds also slowed building and manufacturing. Banks recalled loans, but many borrowers could not pay. Between 1891 and 1893, 22 banks failed.

In 1892 and 1893, gold was discovered at Coolgardie and Kalgoorlie, in Western Australia. The discoveries transformed Western Australia and helped to end the financial crisis.

Employers and Trade Unions. During the depression, employers tried to reduce the influence of trade unions. In 1890, the association of ship-owners demanded that the marine officers' union withdraw from the Melbourne Trades Hall Council. The officers regarded this as a challenge to their right to organize, and went on strike. Seamen and waterside workers stopped work in sympathy with the officers. In New South Wales, farmers rejected demands by shearers for a closed shop. In a *closed shop,* all workers have to belong to a union. The shearers, too, went on strike. They received the support of the seamen and waterside workers and the transport workers, who refused to handle *black* wool—that is, wool shorn by non-union workers.

In 1891, Queensland farmers refused to negotiate with the Shearers' Union and demanded "freedom of contract"—that is, the right to arrange terms with individual shearers. In 1891, the shearers went on strike at Barcaldine, in Queensland.

In 1892, mine-owners at Broken Hill cancelled agreements they had made with the Amalgamated Miners' Association two years earlier, and announced "freedom of contract". The miners went on strike. But police arrested the strike leaders, and the miners returned to work.

In 1894, shearers again went on strike against "freedom of contract". The farmers recruited *strike*

breakers (non-union men who were willing to work) from among the many unemployed men. Union members captured and burnt a river steamer that was carrying strike breakers. In Queensland, some shearers formed armed camps and defied the authorities. But the police arrested the union leaders and the strike failed. Some of the leaders received sentences of up to 15 years' imprisonment.

Results of the Strikes. Before 1890, William Lane, the socialist editor of the newspaper *The Boomerang,* had persuaded the Queensland trade unions to form the Australian Labour Federation, with the purpose of taking political actions. The unions were convinced that their strikes had failed mainly as a result of opposition from the governments. During the following five years, the unions in each colony banded together to form labour parties. The new labour parties were most successful in New South Wales and Queensland. In South Australia and Victoria, they worked closely with radical groups that had previously been influential.

Nationalism. The labour movement was part of a growing national consciousness. People became proud of being Australians. Many of them regarded Australia as a country in which the injustices of the "Old World" could be eliminated. Most of Australia's people were now Australian-born. Many shearers, miners, and other workers moved freely round the country. As a result, the differences between the colonies decreased. A weekly journal, *The Bulletin,* gave expression to the growing national consciousness. Writers such as Henry Lawson, Joseph Furphy, Banjo Paterson, Miles Franklin, and E. J. Dyson became the voices of their homeland. They wrote about the independence of bush workers, about the Australian countryside, and about the ideal of "mateship" (companionship).

Federation. Linked with nationalism was the question of the federation of the Australian colonies. In 1889, Sir Henry Parkes drew attention to two major reasons in favour of federation—common defence and unification of the railways. Many politicians also wanted the colonies to eliminate inter-colonial tariffs. Popular support for federation grew steadily. In 1890 and 1891, the colonies held

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Industrial Disputes broke out in the early 1890s. Police often had to protect non-union workers from angry strikers.

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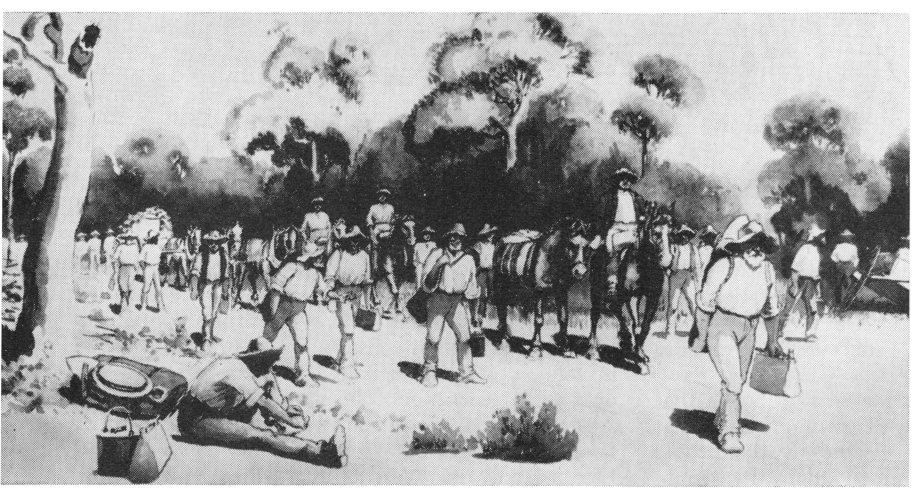
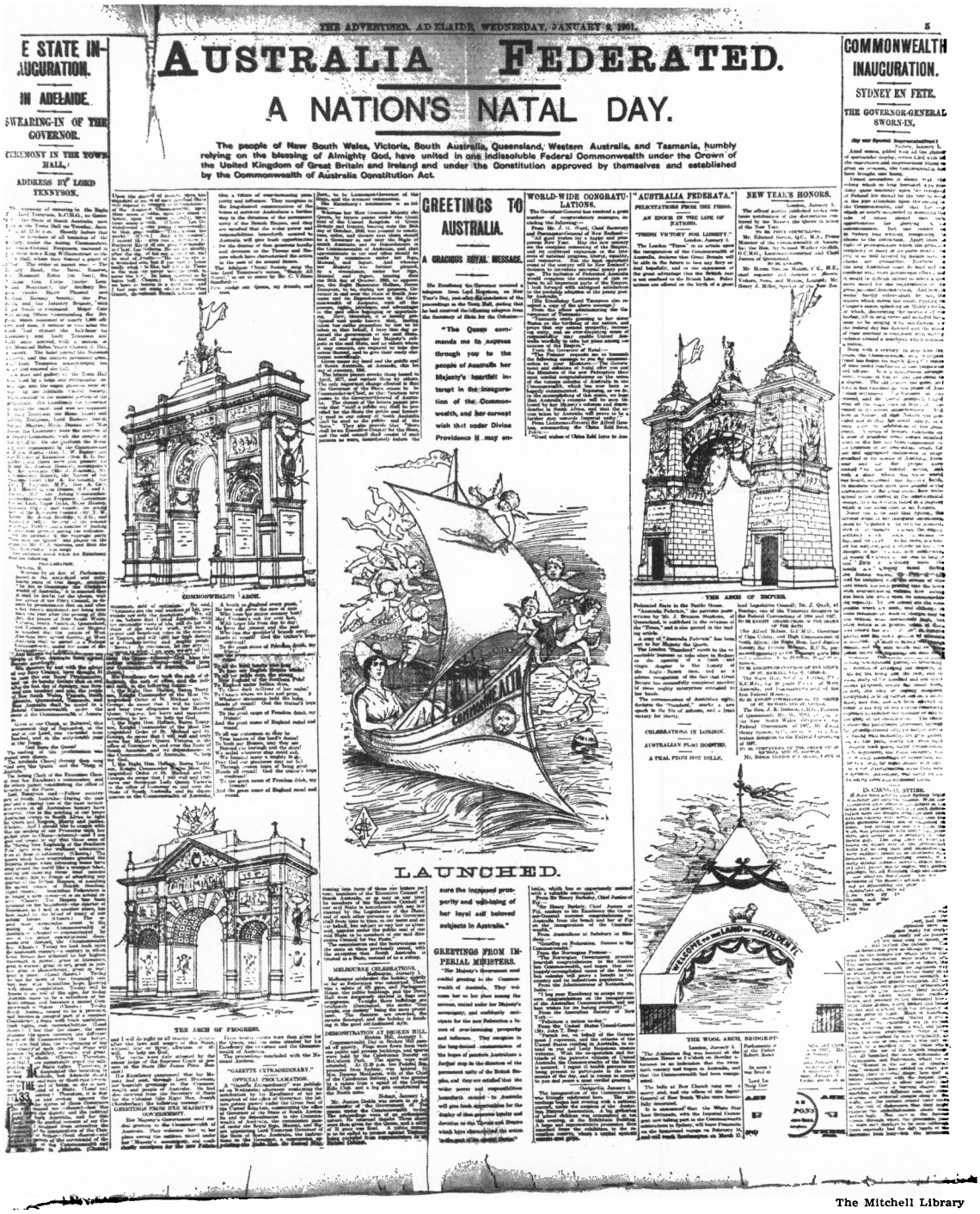


Industrial Development quickened the growth of cities, because people flocked to new jobs in factories. By 1895, Melbourne, *above,* had developed many features still prominent today. Mining also developed rapidly with the discoveries of coal, silver, lead, zinc, and gold. In Western Australia, in 1892 and 1893, hopeful prospectors rushed to the new goldfields at Kalgoorlie, *left.*



THE ADVERTISER, ADELAIDE, WEDNESDAY, JANUARY 2, 1901. 5

E STATE IN-AUGURATION.

IN ADELAIDE.

SWEARING-IN OF THE GOVERNOR.

CEREMONY IN THE TOWN HALL.

ADDRESS BY LORD TENNYSON.

AUSTRALIA FEDERATED.

A NATION'S NATAL DAY.

The people of New South Wales, Victoria, South Australia, Queensland, Western Australia, and Tasmania, humbly relying on the blessing of Almighty God, have united in one indissoluble Federal Commonwealth under the Crown of the United Kingdom of Great Britain and Ireland and under the Constitution approved by themselves and established by the Commonwealth of Australia Constitution Act.

COMMONWEALTH INAUGURATION.

SYDNEY EN FETE.

THE GOVERNOR-GENERAL SWORN-IN.

GREETINGS TO AUSTRALIA.

A GRACIOUS ROYAL MESSAGE.

"The Queen commands me to express through you to the people of Australia her Majesty's heartfelt interest in the inauguration of the Commonwealth, and her earnest wish that under Divine Providence it may ensure the increased prosperity and well-being of her loyal and beloved subjects in Australia."

WORLD-WIDE CONGRATULATIONS.

"AUSTRALIA FEDERATA."

NEW YEAR'S HONORS.

LAUNCHED.

COMMONWEALTH ARCH.

THE ARCH OF EMPIRE.

THE ARCH OF PROGRESS.

THE WOOL ARCH, BRINGING IT TO THE LAND OF THE GOLDEN FLEECE.

The Mitchell Library

Australian Newspapers Joyously Acclaimed Federation on Jan. 2, 1901.

conventions to discuss federation. The members worked out the main principles of federation. But nothing came of these proposals. Such organizations as the Australian Natives' Association began to campaign for federation.

In 1893, John Quick put forward proposals that finally resulted in federation. He recommended that a convention of politicians elected by the people should meet and make recommendations that would then be submitted to the people's vote. Five of the six colonies accepted these proposals. The convention met in 1898 and 1899. A drafting committee drew up the federal constitution. In 1898 and again in 1899, people throughout the continent voted for or against federation. The vote in Victoria, South Australia, and Tasmania was overwhelmingly in favour of federation. But in New South Wales, Queensland, and Western Australia, the vote was

only slightly in favour. The British government finally approved the new constitution. On Jan. 1, 1901, the Earl of Hopetoun, the first governor-general, proclaimed the Commonwealth of Australia. The Duke of York, later King George V, opened the first parliament on May 9, 1901.

Further Information about people and events of the period from 1890 to 1901 is included in the following articles in the Australasian volumes:

Bulletin, The
Federation
Franklin, Miles
Furphy, Joseph
Lane, William
Lawson, Henry
McIlwraith, Sir Thomas
Paraguayan Settlements
Parkes, Sir Henry
Paterson, Banjo
Reid, Sir George
Strikes and Lock-Outs
Trade Unions

Building the Nation (1901-1914)

The federal constitution represented a compromise between the desire for national unity and the interests of the individual states. The federal government gained control over issues such as foreign affairs, defence, immigration, trade and tariffs, and the arbitration of interstate industrial disputes, and over some social services. The state governments retained control over issues such as education, health, and land laws.

Edmund Barton of the Liberal party was the first federal prime minister. Barton's deputy, Alfred Deakin, later became prime minister three times. After the first federal election, the Labor party held the balance of power between the Liberal party and the Free Trade party. In 1904, Chris Watson formed the world's first labour government. But it survived for only four months.

The "Settled Policies". The three parties agreed on a number of general policies that provided for national defence and social welfare and protected Australian interests. These policies became known as the *Settled Policies.* One of the first acts passed by the federal government was the Immigration Restriction Act of 1901. The act provided for a dictation test to be administered to intending immigrants. Other acts prohibited the entry of kanakas, and provided a bounty for cane growers who employed white workers. The state governments continued to assist migrants from Britain. In 1911, the federal government took over the administration of the Northern Territory from South Australia.

Tariff policy was one of the major issues dividing the parties in the federal parliament. In 1906, Deakin introduced the "new protection". His plan provided for a customs duty on agricultural machinery imported into Australia and an excise duty on machinery made in Australia. The excise duty could be remitted if the Commonwealth Arbitration Court considered that a manufacturer paid a "fair and reasonable" wage to his workers. This court had been set up in 1904. In 1907, Mr. Justice Higgins, in the *Harvester award,* determined that £2. 2*s.* a week was fair and reasonable. The High Court ruled that the federal government had no right to make this kind of decision, but the Harvester award came to be accepted as a basic wage. Deakin won firm Labor support for protective tariffs by linking the issue, in this way, with the basic wage issue.

Deakin merged Liberal and Free Trade parties in a "fusion" government in 1909. But the Labor party, led by Andrew Fisher, won a decisive majority in both houses in 1910.

In 1908, the states chose Canberra as the site for the federal capital city. In 1911, Walter Burley Griffin, an American architect, won an international competition for his design of Canberra. In the same year, the government authorized the construction of the Trans-Australian Railway from Port Augusta, in South Australia, to Kalgoorlie, in Western Australia.

Economic Development. The total number of sheep had fallen considerably during the drought of the 1890s. By 1914, the number of sheep was still below the total before the drought. But farmers had adopted improved techniques for breeding sheep, and the total amount of wool produced exceeded the highest output before the drought. Yields of wheat also improved after William Farrer introduced improved strains that resisted drought and *rust* (see RUST in the main volumes). Production of meat, sugar, dairy products, and dried fruits also expanded rapidly.

In 1909, the federal government offered a bounty to encourage the production of pig-iron and steel from Australian iron ore. In 1915, the Broken Hill Proprietary Company (B.H.P.) opened its first steelworks at Newcastle, in New South Wales. By 1914, more than 300,000 people worked in factories throughout the country.

Further Information about people and events of the period from 1901 to 1914 is included in the following articles in the Australasian volumes:

Barton, Sir Edmund
Broken Hill Proprietary Company Ltd.
Deakin, Alfred
Farrer, William
Fisher, Andrew
Government of Australia
Griffin, Walter Burley
Higgins, Henry Bournes
Immigration and Emigration
Political Parties of Australia
Watson, Chris
White Australia Policy

World War I (1914-1918)

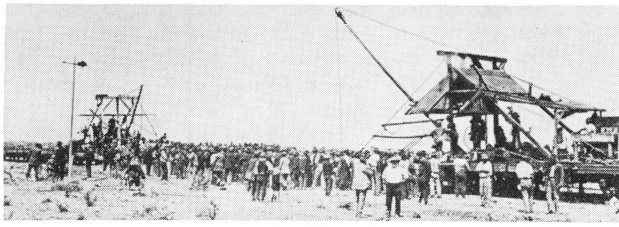
A federal election was in progress when Britain declared war on Germany on Aug. 4, 1914. Joseph Cook, the retiring Liberal prime minister, offered Australia's naval squadron and an expeditionary force of 20,000 men to Britain. Andrew Fisher, the Labor party leader, pledged that Australia would support Britain to "our last man and our last shilling". The Labor party won the election, and Fisher became prime minister.

On Sept. 11, 1914, two Australian battalions landed near Rabaul and occupied the German colony in north-eastern New Guinea. On Nov. 9, 1914, the light cruiser *Sydney* sank the German light cruiser *Emden* off the Cocos Islands in the Indian Ocean.

By the end of 1914, more than 50,000 men had volunteered to join the Australian Imperial Force (AIF). The government sent most of them to Egypt to complete their training. There, they joined with New Zealand volunteers in the Australian and New Zealand Army Corps (Anzac).

Gallipoli. After their training in Egypt, the

Anzac Courage at Gallipoli showed that Australia could recruit one of the finest armies in the world.



The Trans-Australian Railway, finished in 1917, completed the railway link between the capital cities.

The Mitchell Library; Latrobe Library

Anzacs took part in their first campaign, to open the straits between the Mediterranean Sea and the Black Sea to Allied ships. On April 25, 1915, Allied forces landed on the Gallipoli peninsula. The Anzacs landed at Gaba Tepe, in an area later called Anzac Cove. They fought with great courage, especially during the landing and the capture of the Turkish strongpoint at Lone Pine. But most of the Turkish defenders held firm. The Allied troops had to entrench on the steep slopes of the peninsula. Finally, in December, the Allied high command ordered a withdrawal from Gallipoli. The AIF lost 8,500 men at Gallipoli. The Anzacs became recognized as a splendid fighting force. Many people believe that the "Australian nation was born at Gallipoli". See GALLIPOLI PENINSULA in the main volumes.

The Western Front. After Gallipoli, the Anzacs returned to Egypt, where many more volunteers joined them. The Allied high command sent the infantry to the Western Front in France. The Light Horse remained, and, with other Allied cavalry, repulsed a Turkish attack on the Suez Canal in August, 1916.

On the Western Front, the Anzacs took part in the Allied offensive in the summer of 1916 against the German line on the River Somme. The offensive failed, and both armies entrenched for the winter. In the following spring, the Anzacs took part in an unsuccessful attack on the Hindenburg Line and an attempted breakthrough in Flanders. By 1918, the Anzacs, now commanded by General Sir John Monash, had suffered heavy losses. But they took part in resisting the German spring offensive and in the final successful attack on the Hindenburg Line. During three years of trench warfare, nearly two out of every three Anzacs on the Western Front were killed or wounded. They suffered the highest casualty rate among the Allied forces. About 59,000 Australians were killed in the war.

The "Little Digger". War disrupted Australia's trade, and many workers lost their jobs. Prices rose rapidly and living standards fell.

In August, 1915, William Morris Hughes succeeded Fisher as prime minister. Hughes wanted to increase Australia's contribution to the war by introducing *conscription* (compulsory military service). In October, 1916, Hughes submitted his proposal to a *general referendum* (vote of the whole nation), but was defeated. The Labor party expelled him and other people who favoured conscription.

Hughes joined with the Liberal opposition to form the Nationalist party. This party won a large victory in the federal election of April, 1917. In December, 1917, Hughes held a second referendum on conscription. He was defeated again. But he was still the unchallenged leader of the supporters of the war. They called him the "little digger".

Effects of the War. Before the war, Australia had depended largely on Europe for manufactured goods. The supply almost ceased during the war, and Australian industries began to fill the gap. By the end of the war, factories in Australia produced many of the things that it had once had to import.

Hughes wanted Australia to take part in drafting the peace treaties. The Allied powers would not agree. Australia and the other dominions sent delegates to advise Britain, and to take part in the work of the conference committees.

Hughes demanded that the former German colo-

nies in the Pacific be handed over to Australia. Woodrow Wilson, president of the United States, opposed annexation. He proposed that the League of Nations should supervise all former German colonies as *mandated territories* (see MANDATED TERRITORY in the main volumes). Australia secured a mandate over what had been German New Guinea.

Further Information about people and events in the period from 1914 to 1918 is included in the following articles in the Australasian volumes:

Anzac	Emden
Armed Services of Australia	Fisher, Andrew
Chauvel, Sir Harry	Hughes, William Morris
Conscription	Monash, Sir John
Cook, Sir Joseph	Sydney (ship)

Between the Wars (1918-1939)

Australia faced the problem of returning about 340,000 ex-servicemen and women to civilian life. Returned servicemen formed leagues to campaign for their interests. The government allowed free medical treatment for those who had been wounded, and pensions for those prevented by their injuries from working. All ex-servicemen received *gratuities* (money grants). The government also introduced a scheme to settle soldiers on the land. But much of the land offered to them was not of good quality, and the scheme failed. Ex-servicemen received preference in employment in government service over those who had not enlisted.

Sydney Morning Herald

The Depression of the early 1930s caused great hardship for Australians, many of whom lived on money from the state.

The economic boom caused by the war did not last. In 1921, the economy slumped. Disputes between workers and employers had a serious effect upon the country's economy.

The Hughes government appointed A. B. Piddington as a royal commissioner to inquire into the basic wage. Piddington recommended that the basic wage be increased to £4, and that there should be endowments of 12*s*. for each child. The federal government rejected the proposals. Many people became dissatisfied with Hughes's leadership. Workers were bitter about his rejection of increases in the basic wage.

In 1919, a Country party, led by Earle Page, gained representation in the federal parliament. During the 1923 general elections, a group of anti-Hughes Nationalists also emerged as a political force. These two groups acted together, and held the balance of power in parliament. Hughes resigned. Page and Stanley Melbourne Bruce formed a coalition government.

Economic Developments. The Bruce-Page administration reduced the amount of money in circulation and cut government spending. It also sought to encourage economic development by enabling producers of sugar, dairy products, and dried fruits to charge higher prices at home in order to be able to sell their goods at competitive prices overseas. Manufacturing industries continued to be protected by tariffs. The government also encouraged immigration. Between 1921 and 1929, more than 200,000 assisted migrants arrived in Australia.

In spite of the cut in federal spending, state governments continued to borrow large amounts of money. Between 1922 and 1928, they borrowed more than £200 million.

Strikes by waterside workers, timber workers, and coal-miners worsened industrial relations. The Bruce-Page government held a referendum in an attempt to transfer full powers over industrial arbitration to the federal government, but failed. In 1929, the government tried to return the full responsibility for arbitration to the states. Hughes and three other Nationalists voted against the government, causing its defeat. A general election followed. The Labor party won the election, and James Scullin became prime minister.

The financial crisis of 1929 in the United States led to the collapse of Australia's export trade. At the same time, Australia was unable to borrow money from overseas. Wages dropped quickly, and factories closed. By 1932, one in every three workers in Australia was unemployed. Many unemployed people had to live on money from the state.

Combating the Depression. E. G. Theodore, the Labor treasurer, urged the government to put more money into circulation, make more credit available, and devalue the Australian pound on the international market. John Thomas Lang, the premier of New South Wales, urged the reduction of interest payments to holders of government bonds.

In 1930, Sir Otto Niemeyer of the Bank of England investigated Australia's financial position. He urged the government to cut spending and lower incomes. The Commonwealth Arbitration Court ordered a reduction of *real wages* by 10 per cent. (see WAGES AND HOURS in the main volumes). In a month, the state premiers held a conference and supported Theodore's plan. But the governors of the Commonwealth Bank rejected the proposals and refused to provide the government with any more money. The premiers finally adopted the *Premiers' Plan*. This plan involved cutting public service

salaries and pensions by 20 per cent., raising taxes, and lowering the interest rate on government bonds.

Political Quarrels. A split in the Labor party followed the dispute over policies to combat the depression. Joseph Lyons and another minister resigned from the cabinet because they disapproved of Theodore's plan. Lyons joined Nationalist politicians to form the United Australia party. In New South Wales, Lang condemned the Premiers' Plan, and the trade unions supported him. The federal Labor party expelled its entire New South Wales branch. In 1930, the Labor government was defeated. The United Australia party won an overwhelming victory in the next general elections.

In New South Wales, the Lang government refused to pay interest to holders of government bonds. The new Lyons government passed laws to seize New South Wales revenues. Sir Phillip Game, the governor of New South Wales, intervened and dismissed Lang from office. Lang suffered a crushing defeat in the election that followed.

People became impatient at the government's failure to control the depression. Many of them were out of work. Landlords evicted people who could no longer pay rent. The authorities cut off supplies of water, gas, and electricity when people could not pay their bills. Household goods were sometimes seized as payment for debts that the owners could not meet. Some right-wing groups, concerned at the possibility of revolution, formed a militant organization called the *New Guard.*

Left-wing groups, led by the Communist party, campaigned for increased payments to the unemployed and for protection against evictions. They also formed a Workers' Defence Corps to counter the New Guard. Violent clashes were imminent.

Recovery. The world began to recover. From 1933, Australia gradually climbed out of the depression. Manufacturing industries began to expand slowly. In 1932, representatives from the countries of the Commonwealth and Empire concluded the Ottawa Agreement for Imperial Preference. The agreement gave some Australian exports preference on British markets, and helped in the gradual recovery of export prices. By 1938, only 1 worker in every 10 was still unemployed.

The Lyons government continued in office. In March, 1939, Robert Gordon Menzies, the attorney-general, resigned from the cabinet. A month later, Lyons died. Members of the United Australia party elected Menzies as their leader. Earle Page, leader of the Country party, refused to serve with Menzies, and was replaced by Arthur Fadden.

Culture. Between World Wars I and II, opportunities for secondary education improved rapidly throughout the country. By 1939, more than 12,000 students attended universities in Australia. In 1926, the government established the Council for Scientific and Industrial Research (later the Commonwealth Scientific and Industrial Research Organization). In 1932, the Australian Broadcasting Commission came into being. Films replaced theatrical performances as the main entertainment. Radio kept country people in touch with city affairs. Writers began to choose themes connected with cities. Literature and art became more international in spirit.

Further Information about people and events of the period from 1918 to 1939 is included in the following articles in the Australasian volumes:

Broadcasting
Ex-Services Organizations
Fadden, Sir Arthur
Holman, W. A.
Hughes, William Morris
Lang, John Thomas
Lyons (family)
Menzies, Sir Robert Gordon
Page, Sir Earle
Scullin, James
Social Services
Theodore, E. G.

World War II (1939-1945)

On Sept. 3, 1939, Menzies announced that Australia was at war with Germany. Recruiting began immediately for the second AIF.

The "Rats of Tobruk". In January, 1940, the first soldiers left Australia, led by Lieutenant-General Sir Thomas Blamey. Blamey remained in command of the AIF throughout the war. Australian troops fought in the campaign in northern Africa during 1940 and 1941. They helped to repulse an Italian attack on Egypt, and to capture Tobruk and Bengasi in the Italian colony of Libya. During the first half of 1941, the 6th Division of the AIF fought a gallant rear-guard action through Greece and the Mediterranean island of Crete. In June, 1941, Australian and other Allied troops occupied Syria.

German troops reinforced the defeated Italians in northern Africa. They launched a successful offen-

The Mitchell Library

During World War II, Australian and American troops fought major battles against Japanese troops in the islands just north of Australia. They eventually stopped the Japanese and forced them to retreat. For some months, Australia was for the first time in danger of invasion.

sive that isolated Australian and British units in Tobruk. During the six-month siege that followed, a German radio commentator called the men of the Australian 9th Division the "rats of Tobruk". The Australians adopted the name.

From Liberal to Labor. At the beginning of the war, the federal government assumed wide powers over political activity. In June, 1941, the government banned the Communist party because it opposed Australian participation in the war. In the same month, the government assumed power to conscript men for the war effort, but not for military service outside Australia.

In the elections of September, 1940, the coalition of the United Australia party and the Country party won only as many seats as the Labor opposition. Two independent members held the balance. Menzies resigned as prime minister in August, 1941. Fadden, of the Country party, succeeded him, but was defeated a month later when the two independent members voted against the government. John Curtin formed a Labor government.

The Kokoda Trail. The Japanese attack on the American naval base at Pearl Harbor on Dec. 7, 1941, forced Australian attention away from Europe and Africa to the Pacific Ocean. Japanese troops captured Singapore, taking 15,000 Australian prisoners. Later, Japanese troops seized the Dutch East Indies, capturing several thousand more Australians. In January, 1942, the Japanese invaded New Guinea and began to move over the Owen-Stanley Mountains towards Port Moresby. Japanese aeroplanes bombed Darwin and other northern Australian towns. Midget submarines entered Sydney Harbour. But American forces began to fight the Japanese in other areas of the Pacific Ocean. The American navy won important victories in the Coral Sea and at Midway Island, preventing a Japanese sea attack on Port Moresby. Australian troops eventually halted the Japanese infantry at Milne Bay, in eastern New Guinea, and at Eoribaiwa, on the Kokoda Trail, 30 miles from Port Moresby.

Australian and American troops gradually pushed the Japanese troops back through the islands north of Australia. Australian forces fought in major battles in northern New Guinea and the Dutch East Indies. Australian representatives were present at the formal Japanese surrender on Sept. 2, 1945. See World War II in the main volumes.

United Effort. The Curtin government used its wide wartime powers to organize the country for war. It introduced rationing, price control, and wage fixing. Controls over manpower and raw materials ensured that factories produced only essential items. Industries expanded rapidly, especially those that produced metals, chemicals, machines, and machine-tools. Australia continued to produce a great deal of food and export much of it to Britain, in spite of a shortage of labour and agricultural machinery, and a prolonged drought.

The Australian people, threatened by the Japanese advance, became united in the war effort. In 1942, the Curtin government banned a small pro-fascist organization called *Australia First*. But it lifted the ban on the Communist party late in 1943. After the Germans invaded Russia in June, 1941, the Communist party supported the war. Its influence was important in persuading the trade unions to abandon strike action and to accept the directions of the federal government.

In 1943, the Labor government won an overwhelming victory in a general election. In 1944, Menzies reorganized the United Australia party as the Liberal party. Curtin died in July, 1945, six weeks before the war ended. Ben Chifley, a former engine-driver, succeeded him.

Further Information about people and events of the period from 1939 to 1945 is included in the following articles in the Australasian volumes:

Armed Services of Australia	Conscription
Blamey, Sir Thomas	Curtin, John
Chifley, Ben	Kokoda Trail

The Nation Since 1945

Growth and Increasing Wealth. By the end of the war, people both in Australia and overseas wanted to buy almost every item Australian factories could produce. Manufacturers set out to supply this demand. Returned servicemen, immigrants, and foreign money helped them. Within 12 months of the end of the war, about 800,000 men and women left the armed forces to work in civilian jobs. Almost 200,000 refugees settled in Australia through the International Refugee Organization. From 1945 to 1960, more than 1,500,000 immigrants moved to Australia, about half of them from Britain. The government assisted about half of the total. Overseas investment in Australia more than doubled.

By 1965, Japan had become a major buyer of Australian wool products. China and Russia became major customers for wheat. But Britain remained Australia's most important trading partner.

Living standards rose to a high level. By 1965, about one person in every three owned a motor vehicle and about one person in every five owned a television set. More than 7 people out of every 10 lived in houses or flats that they owned or were buying.

The Petrov Affair. The Labor government planned wide governmental control over the economy for post-war reconstruction. Chifley submitted his proposals to popular referenda in 1944, 1946, and 1948. Only one succeeded—the one giving the federal government power to make laws for social services. In 1948, the High Court declared the government's attempt to nationalize private trading banks unconstitutional. The Labor administration was defeated in 1949.

Menzies became prime minister for the second time, leading a coalition of Liberal and Country party members. He held continuous office after 1949, surviving seven successive elections. In 1949, Menzies pledged to take action against communism. He tried to ban the Communist party, but the High Court declared the move unconstitutional in 1950. People voted against the ban in a referendum in 1951.

In 1954, the prime minister announced that Vladimir Petrov, an official at the Russian Embassy

Affluent Years followed the development of Australia's industries in the 1950s and 1960s. Australians enjoyed high standards of living, with modern offices to work in, new homes to live in, and new leisure in which to enjoy life in the sun.

Gert D. Wolff

in Canberra, had defected and disclosed the existence of a spy ring in Australia. The government appointed a royal commission to investigate the allegation. The commission found that spies had operated in Australia before 1949, but did not lay charges against any Australian citizen. Russia broke off diplomatic relations with Australia until 1959.

The Petrov affair exposed the deep divisions that existed within the Labor party over its attitude to communism. During the war, members of the Communist party had won leading positions in a number of leading trade unions. From 1944, B. A. Santamaria, a Melbourne lawyer, led a secret organization known as *the Movement* in an attempt to destroy this communist influence. Members of the Movement won positions of influence in many unions and in the Labor party itself. The Movement received support from many sections of the Roman Catholic Church, especially in Victoria.

By 1954, many members of the Labor party considered that the Movement wanted to capture the leadership of the party. In 1955, some Victorian supporters of the Movement formed the Anti-Communist Labour party. In New South Wales, in 1956, others formed the Democratic Labour party. In 1957, these two parties joined together to form the Democratic Labour party (DLP). The DLP won only a small number of votes at elections. But, by directing its supporters to vote against the Australian Labor party (ALP), it helped to keep Labor out of office.

Since 1951, comparatively few industrial disputes have occurred. One reason is that the proportion of office workers and technical workers in the labour force has increased. Another is that unions whose workers go on strike face heavy penalties.

Collective Security. In 1945 and 1946, the Australian government and people supported independence for Indonesia (see HISTORY OF INDONESIA [Nationalism and Revolution] in this volume). In 1949, the communists achieved victory in the Chinese revolution. Australians feared that communism might spread throughout Asia and eventually Australia. These fears gained strength during the Korean War, which began in 1950. Australian troops formed part of the United Nations force in Korea. Many Australians also feared that Japan might become a militaristic nation again. They expressed doubts about the Japanese Peace Treaty, drafted by the United States in 1951. But many of these doubts disappeared when Australia, New Zealand, and the United States signed the ANZUS treaty, a mutual aid pact.

Starting in 1950, the government sent air force units and troops to fight under British command against communist rebels in Malaya. Indonesia opposed the formation of Malaysia in 1963, and in 1964 began a policy of armed confrontation against Australian, British, and Malaysian troops.

In 1954, a communist-led nationalist force defeated French troops in Vietnam. The United States proposed a collective security treaty, directed against the spread of communism. Australia became a founding member of SEATO (the South East Asia Treaty Organization). In 1965, the Menzies coalition government committed Australian troops to fight beside American forces in South Vietnam. In 1966, Menzies retired as prime minister after more than 16 years in office. Harold Holt succeeded him.

Expanding Horizons. Australia's foreign policy and interests increasingly centred in Asia and the Pacific Ocean. It changed its immigration policies and helped the Colombo Plan (see COLOMBO PLAN in the main volumes). In the period between 1950 and 1964, Australia spent $A 106 million on

economic aid and technical assistance through the Colombo Plan. Australia also made more than 5,000 grants to Asian students to enable them to attend universities and other educational institutions in Australia.

Australia moved Papua and New Guinea steadily towards self-government. In 1951, the Australian government established a legislative council in the territory. In 1964, a house of assembly replaced the council. In 1973, the Australian government granted self-government to Papua New Guinea. See PAPUA NEW GUINEA in the other Australasian volume.

After 1945, opportunities for education increased rapidly throughout Australia. Today, all Australian children who wish to can have some form of further education. More than 60,000 students attend the country's universities. In 1946, the Australian National University, at Canberra, became a centre of postgraduate study and research.

Literature and the arts also flourished after 1945. Contemporary artists could work in a society that by now accepted their creations. Good writers no longer had trouble in finding publishers for their works. The Commonwealth Literary Fund assisted with the publication of books when it considered they had literary merit but would probably have small circulations. The Elizabethan Theatre Trust fostered theatre, ballet, and opera throughout the country. Architecture and design became more imaginative and exciting. With more leisure and more money, more Australians participated in sport. Australian athletes performed brilliantly in almost all world sporting events. In 1956, Melbourne was host to the Olympic Games.

Further information about people and events since 1945 appears in the following articles in these volumes:

Australian National University
Health Services
Holt, Harold
Immigration and Emigration
International Co-operation
Literature of Australia
McMahon, William
Menzies, Sir Robert Gordon
Music in Australia
Oliphant, Sir Mark
Petrov Affair
Political Parties of Australia
Santamaria, B. A.
Snedden, Billy
Theatre
Trade of Australia
Whitlam, Gough

Aids to Learning

Related Articles are included in *Further Information* at the end of each section. See also the *History* sections of the state, city, and territory articles in the Australasian volumes.

Outline of this article is as follows:

I. **The Earliest Australians**
II. **Europeans Reach Australia (1606-1770)**
- A. The Unknown Southland
- B. First Sightings
- C. New Holland
- D. Cook's First Voyage

III. **The Beginnings (1788-1821)**
- A. The First Fleets
- B. The Rum Corps
- C. Early Settlements
- D. The Rum Rebellion
- E. Jail into Colony

IV. **Opening Up the Land (1821-1851)**
- A. Exploration
- B. The Squatting Age
- C. Land Policies
- D. Transportation
- E. Early Immigration
- F. The End of Transportation

V. **Other Settlements**
- A. Western Australia
- B. South Australia
- C. Later Exploration

HISTORY OF AUSTRALIA

VI. **Colonial Government and Society**
- A. The Act of 1823
- B. Towards Representative Government
- C. Towards Self-Government
- D. Colonial Society

VII. **Gold (1851-1861)**
- A. Early Discoveries
- B. The Gold Rushes
- C. The Eureka Stockade
- D. Life on the Diggings
- E. The Importance of Gold

VIII. **Colonial Development (1851-1890)**
- A. Self-Government
- B. Unlocking the Land
- C. Bushranging
- D. Industries of the Land
- E. Transport and Communications
- F. Further Exploration and Development
- G. Manufacturing
- H. Immigration
- I. The Labour Movement
- J. Education
- K. Foreign Relations and Defence
- L. The Growth of Cities
- M. The Australian Way of Life
- N. The Boom of the Eighties

IX. **The Birth of the Nation (1890-1901)**
- A. Depression
- B. Employers and Trade Unions
- C. Results of the Strikes
- D. Nationalism
- E. Federation

X. **Building the Nation (1901-1914)**
- A. The "Settled Policies"
- B. Economic Development

XI. **World War I (1914-1918)**
- A. Gallipoli
- B. The Western Front
- C. The "Little Digger"
- D. Effects of the War

XII. **Between the Wars (1918-1939)**
- A. Economic Developments
- B. Combating the Depression
- C. Political Quarrels
- D. Recovery
- E. Culture

XIII. **World War II (1939-1945)**
- A. The "Rats of Tobruk"
- B. From Liberal to Labor
- C. The Kokoda Trail
- D. United Effort

XIV. **The Nation Since 1945**
- A. Growth and Increasing Wealth
- B. The Petrov Affair
- C. Collective Security
- D. Expanding Horizons

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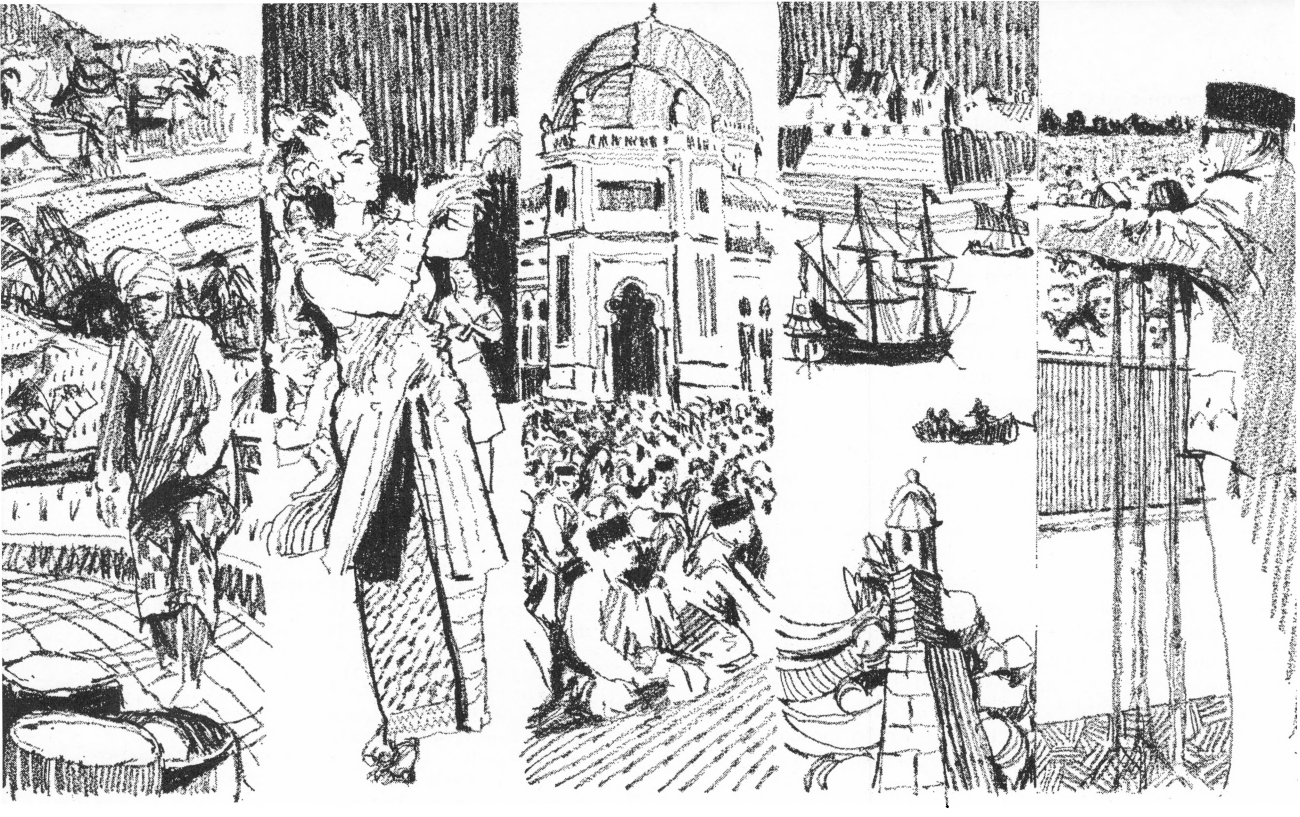


HISTORY OF INDONESIA. From time to time, various kingdoms have brought the islands of Indonesia more or less into one political unit. But, for most of the time, the region has consisted of many states, some large and some tiny. Its history has not really been one continuous story, unfolding during thousands of years.

Historians know little of the earlier period of Indonesian history. They have a clearer knowledge of the period of Indian influences. This period lasted from about the beginning of the A.D. 400s to the 1400s. The empire of Srivijaya, based on southern Sumatra, had considerable control over the seas of Indonesia from the 600s to the 1200s. The Javanese empire of Majapahit claimed to control the region during the 1300s.

Islam, the religion of the Muslims, arrived in Indonesia before 1300. The main advance of Islam took place during the 1400s. During the 1400s, the Malacca sultanate, a Muslim state based on the Malay Peninsula, controlled trade in Indonesian waters. Islam has remained one of the main features of Indonesian life.

The Europeans took new influences to the area. The Portuguese captured Malacca in 1511 and tried with some success to control Indonesian trade. But the Dutch took their place during the early 1600s. During the 1600s and 1700s, the Dutch East India Company established a trading *monopoly*—that is, only they were allowed to trade—and gained some territory. At first, the Dutch wanted only to trade and did not want political control. The Dutch government took over control from the Dutch East India Company in 1799. The Dutch strengthened their control of the area during the 1800s. But they did not effectively establish the *Dutch East Indies* as a single political unit until the early 1900s. During the 1900s, the Indonesians resisted Dutch rule more and more. They declared their independence in 1945, and won it after a four-year struggle.

Ancient Times

Historians know little about the origins of the Indonesian people. The archipelago today contains many distinct peoples.

The Dutch scientist Eugène Dubois discovered the remains of a skeleton in Java in 1891. Scientists believe that this skeleton was that of a man who lived about half a million years ago. Dubois named this man *Pithecanthropus erectus* (erect apeman). But most people call him *Java Man*. Archaeologists later discovered even earlier remains near the town of Mojokerto, in central Java. But scientists have no evidence that Java Man was related to later Indonesian peoples. See JAVA MAN in the main volumes.

Malay peoples left the Asian mainland in a series of waves probably between about 2500 and the 100s B.C. These Malay peoples achieved a great deal in prehistoric times. They knew how to work bronze and iron, to weave textiles, and to navigate the seas. They worshipped spirits inhabiting rocks, streams, trees, and other natural objects. Their society was centred on the village community. See MALAYS in the other Australasian volume.

These early people developed a system of irrigating their rice fields. The people of Java and some other parts of Indonesia still use irrigation based on this system. The people of ancient Indonesia carved terraced fields out of the steep hillsides. They channelled water to flow down the slopes from terrace to

terrace. These terraces remain one of the most striking features of the modern Javanese landscape.

The villages had to co-operate to develop this complicated system of irrigation. This co-operation probably led to the growth of larger communities that could maintain an irrigation system on which a number of villages depended. In this way, small states began to appear. These states drew their strength from rice production.

At the same time, the Indonesians became a trading people. They traded from island to island, but they also played a part in the wider trade that was carried on round the coasts of Asia.

These developments were to be of importance in later periods. They are still important, because they affect the character of Indonesian life. The history of the islands shows a continuing rivalry between agriculture and trade—between land and sea.

Indian Influences

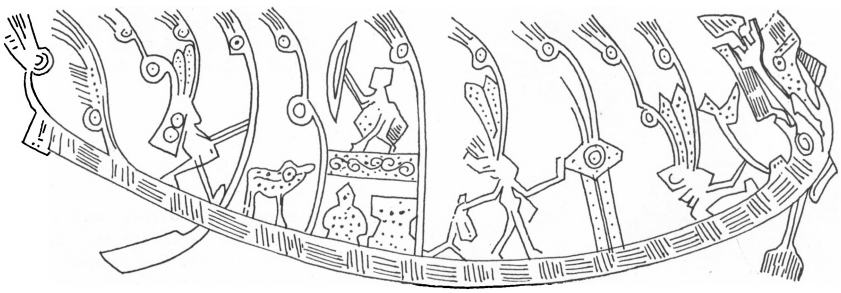
Historians have found signs of Indian influences from about the A.D. 400s in Indonesia, as in other parts of south-eastern Asia. They have put forward several theories to explain this influence. At one time, historians believed that Indian colonists settled in south-eastern Asia and that Indian culture spread from these settlements. But no evidence of Indian colonization exists. Other historians have argued that traders introduced some aspects of Indian culture. Certainly, the Indonesians must have learnt something about Indian ways of life from Indian traders who visited Indonesia or Indonesian traders who had been to India. But most historians now believe there is a more probable explanation. When small kingdoms began to grow up in Indonesia, their rulers borrowed ideas about kingship and about the organization of kingdoms from India. They borrowed these ideas deliberately, to strengthen their own positions and to gain help in controlling their territories.

In any case, the Javanese kingdoms began to show the effects of Hindu ideas of government and administration. One of these ideas was that of *divine kingship*. The Hindus believed that a ruler was descended from a god or was himself a god in human form. This belief helped the ruler to secure the obedience of his subjects. The king ruled through an aristocratic class between himself and the villagers. Indonesian kingdoms developed the idea of aristocracy. But they stopped short of borrowing from India the idea of a rigid *caste* (class) system.

Buddhist as well as Hindu thought influenced the Indonesians. In Java, the main influence was Hindu. But Buddhism had its influence there also. Travellers reported that the empire of Srivijaya, in southern Sumatra, was a centre of Buddhism, and of Buddhist studies. It attracted pilgrims from as far away as China. Historians can guess at the size and power of the kingdoms that grew up in Java under the influence of Indian ideas from the ruins they left behind them. The huge Buddhist temple—the Borobudur—near the city of Yogyakarta, in central Java, was built at the end of the 700s. The group of Hindu temples at Prambanan was built during the 800s.

The Borobudur is a temple without an interior. It is built as a series of nine terraces round the summit of a hill. Its galleries total more than 3 miles in length. The galleries are decorated with carvings showing incidents in the life of the Buddha. The three upper terraces are surrounded by statues of the Buddha. Each statue is under a bell-like covering.

Some of the other temples are the burial-places of rulers as well as places of worship, which suggests that Hindu beliefs may have been mixed with earlier ideas of ancestor worship. The style of all these buildings shows obvious signs of Indian influence. But the buildings have their own distinctive character because Javanese craftsmen developed their own style of workmanship. The buildings differed greatly from Indian buildings.



The Dong Son Culture, which spread throughout south-eastern Asia in ancient times, influenced the Indonesians. They made bronze drums similar to those made in other parts of south-eastern Asia. The *ship of the dead, left,* is a typical design found on such drums.

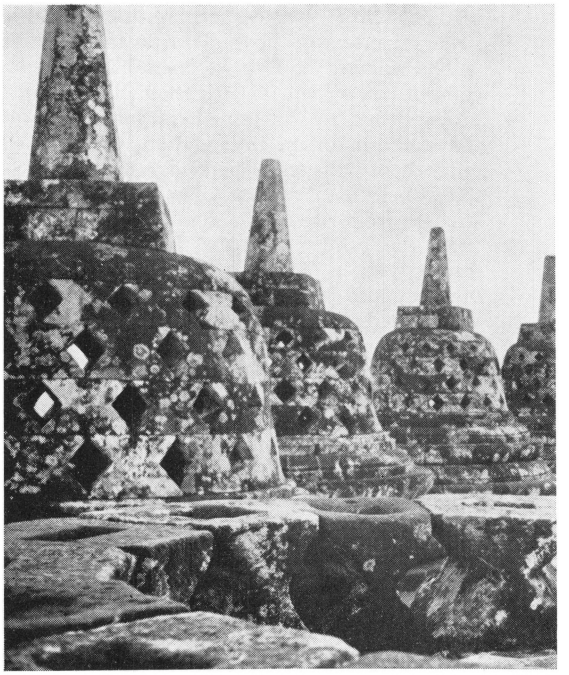
The kingdoms that grew up in Java and Sumatra under these Indian influences were rivals for about 1,000 years. During the 700s, a Hindu kingdom called Mataram was established in central Java under a ruler named Sanjaya. This kingdom was followed by a Buddhist kingdom under a line of rulers named *Sailendra,* which means *kings of the mountain.*

During the 800s, the Sailendras lost control of central Java. But they reappeared as rulers of Srivijaya in southern Sumatra. A new Hindu kingdom, also called Mataram, was established in central Java. Mataram and Srivijaya were rivals for dominance. Srivijaya remained the most powerful kingdom in the islands until it lost power during the 1200s. Mataram lost its power in the 900s, and the centre of power in Java shifted to the eastern part of the island, where a series of kingdoms competed with each other.

During the 1000s, a great ruler named Airlangga, a semi-legendary hero in Indonesian history, suc-

ceeded in building up a strong kingdom in eastern Java (see AIRLANGGA in this volume). According to legend, he later divided his kingdom between his two sons. The two kingdoms, Kediri and Janggala, were later reunited to form a new kingdom, called Singosari. During the 1200s, under a ruler named Kertanagara, Singosari gained control of a large territory. After the death of Kertanagara, his son-in-law Wijaya established the new kingdom of Majapahit. This kingdom was the last and greatest of the kingdoms of the Hindu period.

Majapahit reached the height of its power during the 1300s under the ruler Hayam Wuruk. Its power

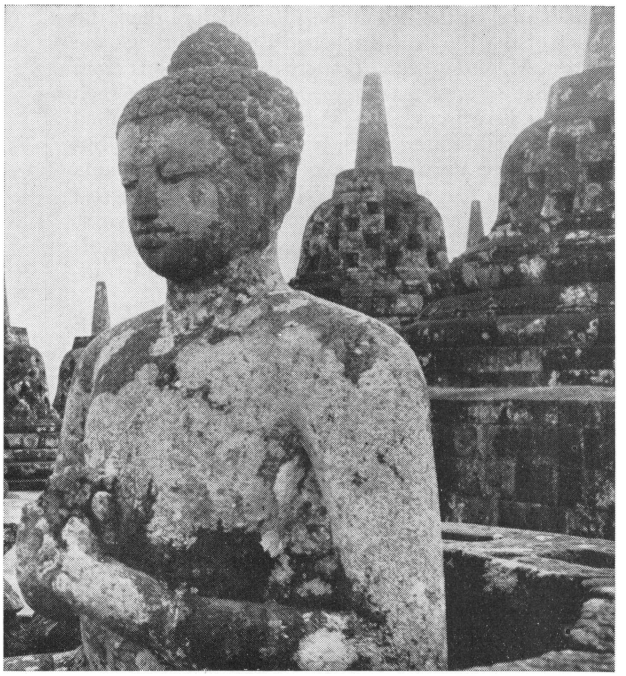


Buddhist Temples, such as the Borobudur, built during the A.D. 700s, survive from the period of Indian influences in Java.

Wayang Characters, such as the *Panakawans* (clowns) still appear in *wayang* (shadow puppet) plays that tell Hindu and Javanese stories.

Keystone

Hindu Temples, such as the group of temples at Prambanan, built during the A.D. 800s, still survive in Java.



Marc Riboud, Magnum

was largely due to Hayam Wuruk's chief minister, Gajah Mada. During his period of office, the empire claimed to control a large part of Indonesia. Historians do not know how effective its control really was. But it was certainly more powerful than the previous empires.

The trade of the archipelago expanded greatly during this period. Traders of many lands—Indians, Arabs, Persians, and Chinese—had sold their goods round the coasts of Asia for a long time. This trade extended from China to the Arabian peninsula. Other traders carried such Asian goods as raw silk, textiles, and porcelain from Arabia into the Mediterranean. Indonesia was a sort of "crossroads" for this coastal commerce. Traders of many countries gathered in its ports in Sumatra, along the northern coasts of Java, and in the eastern islands. They sold their goods and took Indonesian goods in exchange. Traders took spices such as nutmeg and mace and fragrant woods such as camphor from Indonesia to other parts of the world.

At the height of its power, the kingdom of Srivijaya controlled traders in Indonesian waters. But, at other times, the northern coastal ports of Java also exercised control. Inland kingdoms grew up in Java. These kingdoms owed their power to their production of rice rather than to commerce. Rivalry developed between the coastal states and inland states. The conflict between Srivijaya and Mataram was one example of this rivalry. Later, the same rivalry developed between Srivijaya and Singosari. The kingdom of Majapahit was the first empire to owe its power to both rice production and commerce.

The powerful new states used Indian ideas of organization, and court life showed strong Indian influences. The life of village people also showed the influence of Indian ideas. For example, Indian legends became part of the shadow puppet plays, which formed an important feature of court and village life alike. But Indian ideas did not affect village ways of life and outlook deeply. New gods such as Siva did not displace the spirits that the people had worshipped for thousands of years. The villagers continued the customs of co-operation and ways of cultivation that Indonesians had practised long before the coming of ideas from outside.

The Spread of Islam

As traders of many countries made their way to Indonesian ports, they took with them their own attitudes and beliefs. Among these beliefs was Islam, the religion of the Prophet Muhammad. This religion eventually challenged the Hindu beliefs of large parts of Indonesia. Arab traders and Muslim traders from India were among the main carriers of the new beliefs. Their faith had begun to take root in Indonesia long before the end of what historians regard as the period of Indian influence. Historians do not know a great deal about these merchant missionaries of Islam. But they do know that in northern Sumatra some local rulers had adopted Islam for themselves and their subjects as early as the end of the 1200s. The Italian traveller Marco Polo noticed Muslim worship in Sumatra when he visited the area in 1292 (see Polo, Marco, in the main volumes).

A new trading power arose in Malacca, on the western coast of the Malay Peninsula, during the 1400s. It became a centre of the Muslim faith as well as a commercial centre. According to local belief, Parameswara, a Sumatran prince, founded the Sultanate of Malacca. Parameswara, fleeing from his enemies, took refuge first on the island of Singapore and then at Malacca. At that time, Malacca was a small fishing village. It was also a centre for pirates who preyed on the shipping passing through the strait. Under Parameswara, the settlement became a centre of trade. It gained control of the Strait of Malacca and became the centre of a new commercial empire.

Parameswara became a Muslim. His sultanate became a base from which the new religion was able to advance rapidly. During the 1400s, Islam made great advances in northern Sumatra. Aceh, at the northern tip of Sumatra, became the most powerful state of the island. Islam also made advances in

western Sumatra; in the trading centres of Java's northern coast, such as Demak, Tuban, Surabaya, and Pasuruan; and in southern Sulawesi.

The inland kingdoms were at first not so ready to receive the new faith. In Java, the Muslim states on the coast, particularly Demak, quarrelled with the declining Hindu empire of Majapahit. During the 1500s, a new kingdom arose in central Java on the ruins of Majapahit. It adopted the name of Mataram, after the earlier kingdom of that name. But the ruler of the new Mataram became a Muslim. Mataram became powerful enough to defeat Demak and the other neighbouring Muslim states. It re-established a united empire over central and eastern Java. But this empire was a Muslim one. In terms of numbers alone, Indonesia is the largest Muslim country in the world today. But the strength of Muslim belief in Indonesia varies widely from place to place. See RELIGION IN INDONESIA in the other Australasian volume.

The Coming of the Portuguese

During the 1500s, as Islam was establishing itself in many parts of the archipelago, it had to face a new force from outside. European traders arrived bearing the Christian faith.

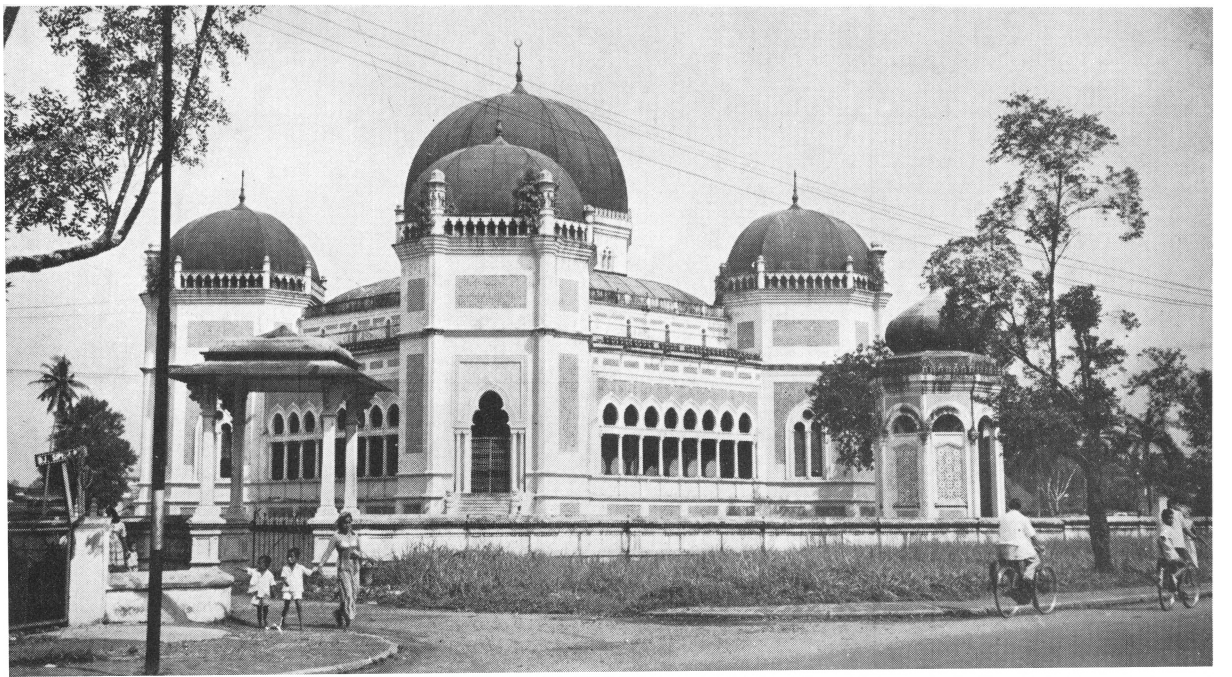
A few European travellers, such as Marco Polo, had visited parts of south-eastern Asia during the 1200s, 1300s, and 1400s. But the first Europeans to make a direct and continuous contact with Indonesia were the Portuguese. Their voyages of exploration had led to the discovery of new routes to *the Indies* (Indonesia) at the end of the 1400s. Before then, the goods of the Indies had reached Europe through the eastern Mediterranean. Traders carrying goods from Asia made contact with Venetian traders in such cities as Damascus. The Venetian traders handled most of the Mediterranean trade in these goods. But in 1497, the Portuguese explorer Vasco da Gama rounded the Cape of Good Hope and sailed across the Indian Ocean to Calicut on the Malabar coast of India (see DA GAMA, VASCO, in the main volumes). Other Europeans—both explorers and traders—followed him.

In a surprisingly short time, the Portuguese established trading posts and built fortresses to protect their interests in the area. In this way, they imposed their control of trade right across the Indian Ocean. In 1510, the Portuguese captured Goa, on the western coast of India. Goa became their major base. Their advance reached its height in 1511, when the Portuguese viceroy in the Indian Ocean, Afonso d'Albuquerque, succeeded in capturing Malacca. As a

Indonesian Children who are Muslims study the Koran, the sacred book of Islam. About seven out of every eight people in Indonesia are now Muslims.

Indonesian Mosques include the one at Medan, in northern Sumatra. People there have been Muslims since Arab traders introduced Islam in the A.D. 1200s.

F. W. James



result of this capture, the Portuguese were able to control the trade of Indonesia just as the Malacca sultanate had done. They built a fortress at Malacca.

The Portuguese were anxious to spread Christianity. But their main interest was in collecting the spices of the eastern islands of Indonesia. They had a profitable market for these spices in Europe. They built trading posts in the Spice Islands (the Moluccas) at Ternate, Tidore, and Amboina (now Ambon). They tried to establish a monopoly over trade there.

They did not succeed. Traders of other European countries successfully challenged Portuguese power in the islands at the beginning of the 1600s. The period of Portuguese dominance lasted only 100 years. But, during that time, their presence accelerated the spread of Islam. Faced by a new and hostile power, the peoples of Indonesia found in Islam a faith that could bind them together to resist the Christian Europeans.

The Dutch East India Company

At the end of the 1500s, the sailors and merchants of Britain and The Netherlands challenged Portuguese power. Both of these countries wished to share in the immense profits to be made from the spice trade. A great rivalry developed between them. At first, merchants of the two countries sent individual expeditions to the Indies. A British expedition under James Lancaster left Europe in 1591. A Dutch expedition under Cornelis de Houtman left in 1595. One ship of Lancaster's expedition reached the Indies, but it was lost on the way home. Houtman had better fortune. He lost many sailors, but he managed to return to The Netherlands with three of his four ships. Other voyages followed.

Soon, British and Dutch traders realized that it was foolish for merchants of each country to compete for trade among themselves. Traders of each country decided to form single big companies for the eastern trade. In 1600, a British East India Company was formed. It received a royal charter that gave it a monopoly over British trade in the Indian Ocean. And in 1602, merchants in Amsterdam and other towns combined to form the rival Dutch East India Company.

For the next few years, the two companies struggled for the absolute control of Indonesian trade. Both of them managed to gain trading footholds in Java, Sumatra, and Sulawesi. Each of them tried to keep the other out of the spice trade by making agreements with local rulers.

The conflict between them continued until 1623. In that year, the Amboina massacre occurred. The Dutch had a fortress at Amboina. The British had a trading post there. The Dutch seized 18 British people and executed 10 of them. They claimed that these men had been plotting to seize the Dutch post.

This incident ended any possibility of agreement between the two nations. The British kept a trading post at Bantam, in western Java, until 1682. But the Dutch company had won the struggle. It was able to dominate the trade of the islands from that time.

The man responsible for this victory was Jan Pieterszoon Coen. He was the Dutch governor-general in the Indies from 1618 to 1623 and 1627 to 1629. The main activities of the British East India Company then became concentrated on India. Indonesia became a Dutch sphere of influence. In 1641, the Dutch captured Malacca from the Portuguese. This victory ensured their trading monopoly.

These actions were to be of great importance for future Indonesian history. But historians are careful not to overstress their importance. Many Europeans think that the coming of the European made an enormous change in the history of Asia. But they tend to forget that the Asian countries had long histories before the 1500s. Indonesia had a record of civilization that stretched back for many hundreds of years before the Portuguese and Dutch sailors appeared in Indonesian waters.

At first, the Europeans did not have a great effect on the life of the islands. The Portuguese did not want to carry the cost of conquering territory and ruling over it. All they wanted was to capture the trade of the Indies. The same was true of the Dutch in the following 200 years. Their aim was to collect spices and to carry them overseas. At first, they did not seem to differ greatly from the traders who had preceded them.

But there were some extremely important differences. Both Portuguese and Dutch took a superior naval and military power to Indonesian waters. They were able to force local princes to trade with them on their own terms. The size of the Dutch East India Company made it quite different from the hundreds of traders who had visited the islands before.

The Dutch company wanted only to trade. But it could not avoid being drawn into local disputes. Some princes who claimed the thrones of various Indonesian states asked for its support. Some rulers sought its help to control their rebellious subjects. As a result, the company's influence over the Indonesians increased. Rulers in direct contact with one of the company's trading stations found their power gradually slipping from them.

The Dutch East India Company gained power in the Spice Islands. The Dutch in charge of trading posts there found that they were best able to look after the company's interests when they imposed their direct control over local rulers. In Java, the process was rather different. There, the Dutch were, almost against their will, drawn into a struggle with the Muslim kingdom of Mataram. In 1674, a rebellion in Mataram led to an appeal by the ruler, Amangkurat I, for Dutch help. The Dutch gave him help. But, in return, the Dutch gained some of Mataram's territory in western and central Java. Later, in the same way, other parts of Java gradually passed into Dutch hands. By 1755, two small principalities in central Java were all that remained of Mataram.

In this way, the Dutch company found itself becoming a good deal more than a trading company. By the end of the 1700s, it controlled Java even more effectively. At various points in the other islands, too, it had begun to set up a similar kind of control. This control was far from bringing the islands as a whole into one political unit and subjecting them to the authority of the government at Batavia (now Ja-

karta). But the foundations of the Dutch empire had been laid.

The trading monopoly that the company established was never quite complete. Smugglers and pirates managed to evade it to some extent. But it did have important consequences for the people of the islands. The once flourishing trading class was largely crushed. To prevent smuggling, the company tried to restrict the production of certain goods to certain areas. For example, they tried to restrict the production of cloves and nutmeg to the Banda Islands and Amboina. They destroyed clove trees in Ternate and Tidore in order to preserve their monopoly. They also demanded *forced deliveries.* They compelled the Indonesians to produce certain crops and deliver them to the company at prices it fixed.

The ruthless measures of the company harmed its own trade, to some extent. The company excluded the Indonesians from a share in their own commerce. As a result, they were too poor to buy the European goods that the company wanted to sell. The trade remained largely one-sided. The Dutch only exported Indonesian products to a European market.

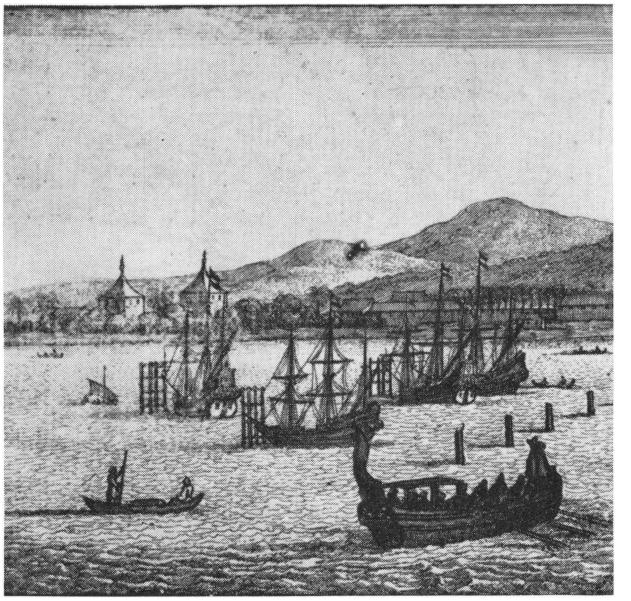
At first, they made enormous profits from the spice trade. But the company had to take increasing responsibility for the government of the areas it had taken. Many of the company's employees became corrupt. As a result, the company gradually declined during the late 1700s. Finally, in 1799, the Dutch government took over the Dutch East India Company and took control of the company's territories in the Dutch East Indies.

The Building of the Dutch Empire

The fall of the Dutch East India Company came during a troubled period of European history. The Napoleonic Wars were in progress (see Napoleon I in the main volumes). France had defeated The Netherlands. Britain was at war with France. As a result, Britain could justify an attack upon the Indies. The Governor-General at Batavia, Herman Willem Daendels, was one of Napoleon's marshals. He made vigorous preparations for defence against the British. But, in 1811, an expedition under Sir Stamford Raffles captured Batavia. Soon afterwards, Raffles forced the Dutch to surrender. For five years, Raffles ruled Java. He introduced certain changes in the administration of the island. He hoped to make the former Dutch possessions a permanent part of Britain's empire.

But, after the defeat of Napoleon in 1815, Britain returned the former Dutch territories to The Netherlands as a means of strengthening the country in Europe. Britain kept only its old station at Bencoolen (now Bengkulu), in southern Sumatra. In 1824, the British gave up even this station, exchanging it with The Netherlands for Malacca.

At first, the Dutch government governed Java and controlled the other trading posts in the islands along the main lines established in the days of the company. Their aim was still to collect the goods of the Indies for sale in Europe. But they adopted some new methods.

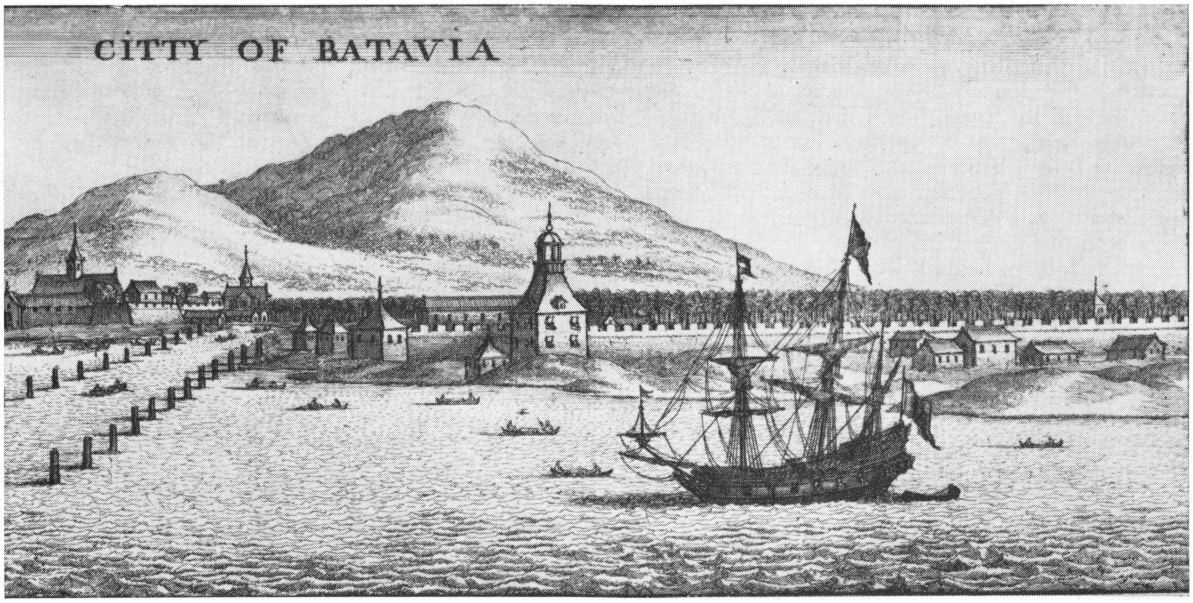


In 1830, Governor Van Den Bosch introduced a new way of gaining Indonesian products for export. The new method was called the *culture system.* The Dutch ordered villagers in Java to set aside 1 acre out of every 5 of their land to grow crops for the government. The Indonesians delivered these crops to the government instead of paying taxes. The crops grown were mostly sugar, coffee, tea, indigo, and tobacco. In some ways, the system was not unlike the system of forced deliveries. But it was much more thoroughly controlled.

The culture system imposed heavy burdens on the Indonesians. In time, it also became unpopular in The Netherlands. It was a system of government enterprise. Many people in The Netherlands wanted private companies and individuals instead of the government to receive opportunities in the Indies. People expressed this view more strongly during the course of the 1800s. Eventually, in 1870, the government decided to allow private people to lease land in Indonesia.

This encouragement of private capital in the islands was known as the *liberal policy.* It opened the way to enormous economic and political changes in Indonesia. The year 1870 marks a distinct change in the development of Dutch rule and Dutch economic policy in the Indies. Private individuals invested money in plantations. These plantations replaced in importance the old method of collecting produce from Indonesian growers. A flourishing plantation region grew up in eastern Sumatra. This area produced rubber, palm oil, tobacco, and other products. Plantations also developed in Java. Production on Dutch-owned plantations led to an enormous growth in exports. Between 1870 and 1930, the exports of the Indies increased more than 10 times.

The Dutch began to extend their control effectively outside Java and Sumatra only after 1870. They gradually brought the remainder of the archipelago under a unified system of government. They



Mansell

In the 1600s and 1700s, the Dutch East India Company established control over trade in Java and the Moluccas. Batavia (now Jakarta) was its centre.

Three Lions

In the Early 1940s, Surabaya, *right,* was a leading city and port in the Dutch East Indies, which the Dutch had established in its final form by about 1910.

extended their control partly by conquest. For example, they had to fight for a long time before they could bring the northern tip of Sumatra—Aceh—under control. In other places, the Dutch made a series of agreements with local rulers. They persuaded these princes to place themselves under Dutch rule. In this way, by about 1910, the shape of the Dutch East Indies was established in its final form.

The liberal policy led to a great increase in the wealth of the Indies. But the Indonesians did not share in this wealth. While the Dutch were making great profits, the Indonesians' standard of living was falling. In The Netherlands, humanitarian people criticized government policy. They argued that The Netherlands had a debt of honour to repay because it had drawn wealth from the colony.

In 1900, in response to these criticisms, the government decided to make efforts to encourage Indonesian development. It tried to introduce what would now be called a *welfare policy* for the colony. The new approach was called the *ethical policy.* Under this policy, the Dutch treasury made money available for agricultural development and the provision of health services and education.

At first, this policy seemed an extremely idealistic change in the government of the colony. The Dutch adopted it with great enthusiasm. But it did not succeed in its aims. The Dutch made some attempt to assist village agriculture. They introduced new crops, built new roads, and enabled farmers to get credit more easily. They improved the irrigation works on which the whole agricultural system depended. But these improvements merely patched the old system of agriculture. The Dutch made no attempt to change the system itself. In fact, the living standards of most Indonesians did not improve. Villagers themselves resented the increased supervision of their lives that the new system brought with it.

The Dutch increased the number of schools. But the results were disappointing. Only a few more people learnt to read and write. Only a tiny number of Indonesians managed to secure a high school or university education. And of these few people, some were unable to get jobs in government service or in business because there were too few such jobs. As a result, those Indonesians who had had a western education felt that their new skills were not being used. They became extremely resentful that Dutchmen were always preferred for any jobs that were available.

The Dutch intended the ethical policy to be an experiment in directing social change. They intended

to train Indonesians to take their place in the modern world. It was a failure. But social change did take place in Indonesia, side by side with the great economic changes of the period. For hundreds of years, the islands had been the home of farming and trading communities. But the farmers had grown little more than they needed in order to keep themselves and their families alive. Traders merely collected and exchanged what have been called *garden products.* These products were the nutmeg, the pepper, and the cloves that had drawn traders of other lands to Indonesia. But, at the end of the 1800s, the region felt the full force of the European industrial revolution. European factories needed rubber, tin, copra, and petroleum. Providing these products had a great effect on Indonesian society. Indonesia became part of a new world-wide economy. Great changes affected the age-old patterns of life among the people of Indonesia.

People were needed to work the new plantations. Many Indonesians left the villages for the quite different life of the labour lines. Many people left the land to work for Europeans in the cities. Cities grew rapidly, and slums developed. Indonesians who had left behind their old ways of life did not find a new way of life to fit into. In their villages, the society around them had its own organization, its own beliefs, and its own ways of caring for people. There, people had been poor, but they had experienced a feeling of belonging. In their new life, they lacked this feeling. They were displaced persons in a changing world. The same was true of those Indonesians who had received a European education. They did not have the opportunity to use the new skills they had learnt, and they no longer felt that they belonged to their old society.

One major development of this period was the growing importance of the Chinese community. The Chinese had for long been an important group on the islands. They had taken part in the trade of the islands for hundreds of years. In the days of the Dutch East India Company, they had collected produce for it. Now, they became of great importance in the internal commerce of the Indies. In particular, most shopkeepers were Chinese.

Nationalism and Revolution

Early movements of resistance against the Dutch included a revolt in 1825. Diponegoro, a Javanese prince, led the revolt, which was against the Dutch in Java. A little later, the Dutch tried to subdue the people of western Sumatra. In 1903, after a long war, the Dutch gained control of the Acehnese, who lived at the northern tip of Sumatra.

These movements of resistance did not have a nationalist goal in the sense of seeking independence for Indonesia's peoples. But the idea of a nation arising on the ruins of Dutch rule began to grow during the 1900s. Dutch rule was often harsh. But this harshness was not the cause of the growth of nationalism. Dutch colonialism, like all forms of colonialism, had its oppressive aspects and also led to unfair distinctions between people of various races. But historians are careful not to overstress these aspects. In fact, the Dutch record compares favourably with that of many other colonial powers of the late 1800s and early 1900s. The ethical policy, for example, had much humanitarianism about it.

Nationalism sprang instead from the great changes in the way people made their living, and in their ways of life, that occurred during the later years of Dutch rule. Many Indonesian leaders were intellectuals. They were men who had received a western education but had not been able to use it.

From the early 1900s, nationalists established a number of organizations. Some nationalists wanted a greater share in the government, and others demanded complete independence.

Indonesian Independence was declared by Sukarno, *at microphone,* and Mohammad Hatta, *right,* on Aug. 17, 1945. Japan had offered to surrender, but Japanese soldiers were still in Indonesia.
Foto Deppen

One of the first figures in the nationalist movement was a woman. She was Princess Kartini, the daughter of a Javanese regent. Her letters urging the *emancipation* (freeing) of women were published after her death. They increased the strength of early nationalist feeling.

In 1908, Wahidin, a Javanese doctor, founded the first nationalist organization. He called it *Budi Utomo* (high endeavour). It appealed to western-educated Indonesians rather than to the mass of the people. It was not strong enough to offer any great challenge to Dutch authority. In any case, its goals were cultural rather than political.

In 1912, a group of Javanese traders formed a new society, called *Sarekat Islam* (Islamic Union). This Muslim society presented a more important challenge to the Dutch. The traders wanted to resist Chinese competition in the batik industry (see BATIK in the main volumes). But the new society quickly changed, becoming, under the leadership of Cokroaminoto, a mass political organization. Within seven years it had a membership of more than two million. The new party wanted to base itself on Muslim support. Within a few years, it had to meet a challenge from the newly formed Communist party of the Indies. Members of the Communist party became members of Sarekat Islam and attempted to influence it. During the early 1920s, Sarekat Islam succeeded in expelling the communists. In 1926, the Communist party launched revolts against the Dutch in Java and Sumatra. The Dutch had no difficulty in suppressing these revolts.

After 1926, a number of new nationalist societies sprang up. One of these was the *PNI* (Indonesian Nationalist Party), under the leadership of Sukarno. Other groups included *Partindo* (Indonesian Party), *PRI* (Indonesian People's Party), *Parindra* (Greater Indonesia Party), and the Freedom Group, which included two later prime ministers, Sutan Syahrir and Mohammad Hatta. Some of these groups were willing to co-operate with the Dutch. But others urged continuing resistance until Indonesia obtained independence.

The Dutch reaction to the nationalist movement was mixed. At first, the government allowed the movement to develop. But it had some doubts. In 1916, it decided to forestall Indonesian demands by giving some official recognition to Indonesian opinion. It decided to create a new national assembly in which Indonesians would have a voice. After the end of World War I, the Dutch set up this body, called the *Volksraad* (people's council). Representatives of the Dutch, Indonesians, and other Asians sat on this council. Some representatives were elected and some were appointed. The Dutch hoped that the Volksraad would channel nationalist feeling into directions they considered suitable. But the Volksraad had few powers except those of debate. Most nationalists considered it quite inadequate. Some nationalist societies tried to work within the assembly. But others refused to recognize it. They worked for the nationalist cause in more radical ways.

During the 1930s, the Dutch government of the Indies succeeded in keeping the nationalist movement under control. The Dutch exiled many of its leaders to New Guinea. But, during World War II, the Japanese advanced into south-eastern Asia. They captured the Indies in March, 1942. This defeat had most important consequences. First, the Japanese showed that the Dutch were not, after all, invincible. Second, Japanese occupation authorities gave Indonesians important tasks from which the Dutch had excluded them. The Indonesians who did these tasks gained a new feeling of confidence. Finally, the Japanese were willing to give a limited degree of recognition to nationalist leaders in order to make their own rule acceptable. Sukarno, in particular, was able to use his position as an intermediary between the Japanese army and the Indonesian people to speak against imperialism during the years of occupation. He spoke against Dutch imperialism, but his audience could see that his arguments could easily be applied to Japanese imperialism too.

The Japanese began to lose the war in the Pacific, and decided to prepare for granting independence to the Indonesians. They hoped in this way to add to the difficulties of the Allies. But the Indonesian leaders did not want to receive their independence from the Japanese. On Aug. 17, 1945, they themselves declared Indonesia independent.

When British troops arrived to receive the Japanese surrender, they found that the nationalists had already created the framework for a government. The Dutch expected to take control once again. They did not succeed. The nationalist government was too strongly established to be easily suppressed. The next four years were years of struggle alternating with negotiation. In 1946, the Dutch and Indonesians reached an agreement under which the Dutch promised some measures of independence to the islands within the framework of the Dutch Union. But the details were not settled. The Dutch obviously wished to reimpose their own authority before granting self-rule. The nationalist government could not accept these terms. It feared that the Dutch would not give independence if they regained control.

In 1947, and again in 1948, the Dutch launched what they called "police actions" in an attempt to settle the dispute. Indonesian troops resisted bravely. In 1947, the United Nations was called upon to intervene, and tried to help negotiations. Finally, in 1949, after the United States brought pressure to bear on The Netherlands, the Dutch agreed to negotiate once more. They transferred sovereignty to Indonesia in December, 1949.

Indonesia Since Independence

Indonesia began its life as an independent state with high expectations. At first, it adopted a federal constitution, because of its agreement with The Netherlands. According to Dutch arguments, federation was the only way in which the interests of the more sparsely populated outer islands could receive equal weight with those of densely populated Java, where two out of every three Indonesians lived. But the Indonesian leaders resented this arrangement. Within a year, they changed the constitution and concentrated power in one centre.

This change did not affect the main character of Indonesia's system of government. Indonesia aimed to be a democratic country. It had a parliament. The members were appointed rather than elected, but this arrangement was to last only until elections could be held. The government planned to have elections as soon as possible. Indonesia had a prime minister and a cabinet responsible to parliament. It also had a president. His powers were not clear, but the constitution seemed to intend him to be a figurehead rather than an active political leader. The leader of the government was intended to be the prime minister.

At first, these parliamentary institutions seemed to work well. Most of the leaders of the new republic had had a western education. They felt attached to western ideas of democracy. But they found that running a democratic system can be extremely difficult. There were three main reasons for this difficulty: the gap between the educated leaders and their people, discontent in the outlying islands with the dominance of Java, and political instability.

A huge gap separated the mass of the people from the few western-educated leaders. Many people had hoped for a great change in their conditions once the Dutch were driven out. Their leaders knew that the independent country faced great difficulties. The people gradually found that their living standards were little better than before. Many of them became discontented.

The people who lived in Sumatra, Kalimantan, Sulawesi, and the other outer islands did not like being outnumbered by the Javanese and resented Javanese control. They considered that they contributed greatly, through their exports, to the country's prosperity, but that the people of Java drew the benefits. People in many of the outer islands smuggled goods into and out of the country. They wanted to by-pass the control of the central government and to keep their profits themselves.

A great number of political parties sprang up, weakening the democratic system still further. None of the parties could gain the support of a majority of members of parliament and provide strong government. About 30 parties had been formed by the time elections were held in 1955. See POLITICAL PARTIES OF INDONESIA in the other Australasian volume.

The 1955 elections did not give a majority to any one party. They did not resolve the problem of Indonesia's political life. After the elections, Sukarno, the president, began to take a greater part in politics. The army also began to show signs of impatience with the corruption of politicians.

In 1956, leaders in the province of Central Sumatra set up their own government. They claimed to be loyal to the republic. A more serious crisis developed in February, 1958. A series of leaders in western Sumatra called upon the central government to resign. Many of these leaders belonged to the

West Irian was transferred to Indonesian control by the United Nations on May 1, 1963. Sukarno had repeatedly demanded the area from the Dutch since 1949.

Masyumi, a Muslim political party, and PSI, a socialist party. When the government did not resign, these leaders established their own régime, calling it the *Revolutionary Government of the Republic of Indonesia.* Another part of Indonesia, northern Sulawesi, joined the revolt. The revolutionary government appealed to other countries for recognition. But other countries wanted first to discover the strength of the new government. The central government mobilized its forces and attacked the rebels. By the end of 1958, the government had crushed the main outbreak of the revolt.

The crises from 1956 to 1958 gave Sukarno an opportunity to take a leading part in active politics. And, as a result of its success in suppressing the revolt, the army also became a strong political force. The President had to share his power with the army.

In 1957, Sukarno had begun to put forward his own ideas about what the government of Indonesia should be. He summed up these ideas in the term *guided democracy.* He said that western democracy was not suited to Indonesia's needs. Sukarno wanted to get rid of parliament, because the political parties in it pursued their own interests. He wanted to establish a new assembly made up of representatives of the various sections of the people and regions of the country. These *functional groups,* as he called them, would include such groups as farmers, workers, youth, women, and members of religious faiths.

The political parties opposed this idea. For some time, Sukarno could not get an assembly like the one he wanted. He first formed a national council in 1957. But it had merely advisory powers. Then he called for a return to the constitution of 1945, under which Indonesia had fought the revolution. This constitution gave great powers to the president. It also provided for the kind of functional assembly Sukarno desired. At last, in 1959, Sukarno introduced the 1945 constitution by decree. Parliament continued to exist, but it was less important than before. Sukarno set up a new body, the Supreme Advisory Council. In it, sections and groups were represented, as the President wanted.

These changes did not solve Indonesia's problems. Its exports declined. Prices rose and serious inflation occurred. Under guided democracy, a number of groups competed for power. The army was one group. Its rival, the Communist party, had grown extremely powerful. The other parties were less strong during the early 1960s than before.

Sukarno stood above these rivals and tried to keep the balance between them. In this unsettled situation, he devoted much effort to display. For example, he spent much time and money on the Asian Games, held in Indonesia in 1962. He emphasized his claims to lead the peoples of Asia and Africa in their struggles against the continuing dangers of colonialism. Indonesia was host to the Afro-Asian conference held at Bandung in 1955. Sukarno repeatedly demanded West Irian (then Netherlands New Guinea) from the Dutch. West Irian came under Indonesian rule in May, 1963.

When Malaysia was formed, in September, 1963, Indonesia objected to the inclusion of Sarawak and Sabah (North Borneo) in Malaysia. Sukarno announced a policy of *konfrontasi* (confrontation) against Malaysia, and armed volunteers began crossing into parts of Malaysia in 1964. Indonesia withdrew from the United Nations in 1965 as a protest against the election of Malaysia to the Security Council. But it rejoined in 1966.

In October, 1965, certain army officers, alleged to have been acting in conjunction with the Communist party, killed a number of other officers and tried unsuccessfully to seize power. A counter-coup under army leadership crushed the movement. Thousands of communists, including several communist leaders, were killed during the following months. Early in 1966, Sukarno yielded to increasing pressure from the army and from student groups and delegated political powers to Lieutenant-General Suharto to restore political order. Suharto banned the Communist party and helped to reorganize the government. In June, 1966, the new Indonesian leaders agreed to end confrontation. In July, 1966, the Provisional People's Consultative Assembly (MPRS) revoked Sukarno's title of "President for Life." In 1967, Suharto became acting president. The next year, Suharto became the second president of Indonesia.

Suharto's government worked to restore order in the economic and political life of the country. It organized national elections in 1971, the first since 1955. It sought foreign economic aid, gained delays in repaying foreign debts, and tried to devise ways to control inflation.

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Books to Read about this topic include:

Hall, D. G. E. *A History of South-East Asia.* Macmillan, 1964.

Legge, J. D. *Indonesia.* Prentice-Hall, 1969.

McVey, Ruth T., ed. *Indonesia.* Human Relations Area Files Press, 1963.

HISTORY OF MALAYSIA. The most important factor in Malaysia's history has been its geographical position. The Malay Peninsula separates the Indian Ocean from the South China Sea. In ancient times, it was a convenient landing point for Indian and Chinese traders. The north-east monsoon, which lasts from December to March, brought sailing-ships from India to the Malay Peninsula. They waited there for the south-west monsoon, which lasts from June to October, to continue their voyages to China.

Merchants and adventurers from many lands were attracted to the rich trading centres of Malaya. The Indians had a lasting influence on the art and culture of the people. The Arabs introduced Islam, Malaysia's national religion, into the area. The Portuguese and Dutch introduced European economic ideas and methods, and the British laid the foundation for Malaysia's political development.

Ancient Times

Prehistoric Malaysia. Many thousands of years ago, much more of the area of Malaysia and Indonesia was above the sea than at present. The Malay Peninsula and the Malay Archipelago were probably the main route taken by successive waves of people who migrated from the mainland of Asia to settle in Australia and the islands of the southwestern Pacific Ocean. Migrants also settled on the peninsula and in the islands of the archipelago.

Little evidence of early men and their ways of life has survived. But, in the Niah Caves in Sarawak, archaeologists have discovered layer after layer of tools and human skeletons. At one level, they found a human skull which they estimated to be at least 35,000 years old.

Archaeologists have found evidence of men belonging to the Middle Stone Age who lived in the region at least 10,000 years ago. These people lived in caves and rock shelters, and depended for food on what they could gather, hunt, or trap. They had rounded stone axes chipped from river pebbles, and they knew how to use fire. They probably resembled the people who live today in New Guinea and the islands of Melanesia.

After about 3000 B.C., another wave of people arrived in the region. They knew how to make simple pottery and better tools than earlier migrants. They lived in wooden, thatched shelters in small villages, cultivated such crops as sago and yams, and built boats and fished in the sea. Anthropologists classify these people as *Proto-Malays,* and believe that they were among the ancestors of present-day Malaysians and Indonesians.

Other ancestors of the people of Malaysia arrived in the region during the 200s and 100s B.C. Anthropologists have named them *Deutero-Malays.* They used bronze and iron implements, which they probably acquired through trade, and they grew rice or fished for a living.

Historians need much more evidence before they can form definite opinions about the pattern of migration to the region in ancient times. Most of them now believe that the migrations were continuous, long-term, and slow.

Early Trade. During the 100s B.C., the Malay Peninsula became important in trade because of its position. Greek authors of the A.D. 100s provide the earliest written references to the region, describing it as *Khryse* (Golden Land) and *Argyre* (Silver Land). They probably obtained their information from Greek or Roman merchants who had visited India. In the late 100s, the geographer Ptolemy described

what was probably the Malay Peninsula as the *Golden Peninsula.* He implied that it had been influenced by Indian culture.

Other Greek and Chinese authors of the period described the trade between India and south-eastern Asia, and between China and the Malay Peninsula. Indian traders exchanged textiles and iron tools for camphor, gold, ivory, spices, and tin. The Chinese traded silks and pottery for precious stones.

Early Empires

By the 300s, various kingdoms had grown up in south-eastern Asia, based on the trading centres in the region. The people of these kingdoms were active in commerce and sea warfare. From time to time, one kingdom conquered several others and acquired an empire. The rulers of the kingdoms were strongly influenced by Indian religious and cultural ideas. They adopted Indian systems of government, and used Sanskrit as their sacred language.

Historians believe that Indian influence arrived and spread in the region in various ways at various times. For example, some Indian traders probably married the daughters of local rulers. Similarly, local traders who visited India probably carried back some Indian beliefs and customs. Many of the rulers may have deliberately adopted Indian ideas about kingship and aristocracy in order to strengthen their own positions.

The Empire of the Kings of Funan was the first great power that arose among the kingdoms of south-eastern Asia. It began in the 100s as a kingdom on the lower Mekong River, with its capital at Viyadhapura, near the present border between Cambodia and South Vietnam. In the 200s, it won control over several kingdoms and ports on the Isthmus of Kra and in the northern part of the Malay Peninsula. Kedah was already an important trading centre, and archaeologists have found much evidence of Indian influence, both Hindu and Buddhist, in the region.

The empire of Funan began to decline in the 500s. It had set a pattern for its successors by controlling the ports of the Isthmus of Kra and the northern part of the Malay Peninsula, and by exercising some control over local sea routes.

The Empire of Srivijaya emerged in southern Sumatra in the late 600s. It was based on the inland city of Palembang, but it became a great sea power and managed to profit from the increased trade between Arabia and China that developed in the 600s and 700s. By 775, the kingdom of Srivijaya controlled both the Strait of Malacca and the Sunda Strait, and much of the mainland of Malaya, including Kedah, Kelantan, Pahang, and Trengganu.

In the mid-700s, a line of Buddhist rulers, known as *Sailendra* (kings of the mountain), had come to power in Java. By the mid-800s, a Sailendra king was in full control of the empire of Srivijaya. In 1031, raiders from southern India attacked the empire. They left a Sailendra as ruler, but the raid weakened the power of Srivijaya. Its decline continued in the 1100s, and, by the mid-1200s, the various Malay kingdoms began to assert their independence.

The Empire of Majapahit began in the 1220s in Java, when the rulers of the kingdom of Singosari replaced the Sailendra. One of the Singosari kings, Kertanagara, wanted to establish a grand confederacy of Malayan and Indonesian kingdoms. In 1292, he launched attacks on Sumatra, southern Borneo, and southern Malaya. After the death of Kertanagara, in 1293, his son-in-law, Vijaya, established the new kingdom of Majapahit.

Majapahit became increasingly powerful during the 1930s under the influence of Gajah Mada, the chief adviser to one of the rulers of the kingdom. The empire of Majapahit was strongest in Java, but it may have had some control over trade through the Strait of Singapore and over various ports in Borneo and Sumatra.

During this period, the kingdoms of Malaya acquired great wealth and prestige because of increased exports of tin and jungle products. Pahang became particularly important, and some writers used its name to refer to the whole of the Malay Peninsula.

The Founding of Singapore. In the 1500s, the writers of the *Sejarah Melayu* (*Malay Annals*) recorded that the first settlers on the island of Singapore, sometime before 600, were people from Bintan, in the Riouw Archipelago. At that time, the island was called *Temasek.* The settlers renamed it *Singapura,* Sanskrit for *lion city,* because they saw a lion when they landed. This story is only one of several explanations for the name. Some historians believe that the name came from the court of Majapahit, where a sect of Buddhists called themselves *lions,* and gave the name *Lion City* to the places where they lived. Others say that the name came from the Sanskrit *Singga-pura* (city where people break their journeys).

Both Arab and Chinese sailors knew Singapore as a haunt of *orang laut* (sea gypsies). It was a port in the empire of Srivijaya, and, in 1025, raiders from southern India attacked it. In 1365, the empire of Madjapahit claimed Singapore as a dependency.

The Spread of Islam

The Coming of Islam. Arab traders who visited the ports of Indonesia and Malaysia brought with them their own religion, Islam. Between 1280 and the mid-1500s, Islam became the main religion in most parts of Indonesia and Malaysia. Some rulers accepted it for economic and political benefits in their dealings with Muslim traders. Other rulers, especially in Java, adopted Islam in order to break away from the Hindu-Buddhist empire of Madjapahit. In contrast to Hinduism and Buddhism, which were strongest in the royal courts, Islam was a religion for all the people.

The Malacca Sultanate, founded in the early 1400s, quickly became the cultural and religious centre for the Muslim faith. A stone inscription in Trengganu that dates from the 1400s is evidence of how Islam spread through the Malay Peninsula as the sultanate acquired increased commercial and political power.

HISTORY OF MALAYSIA

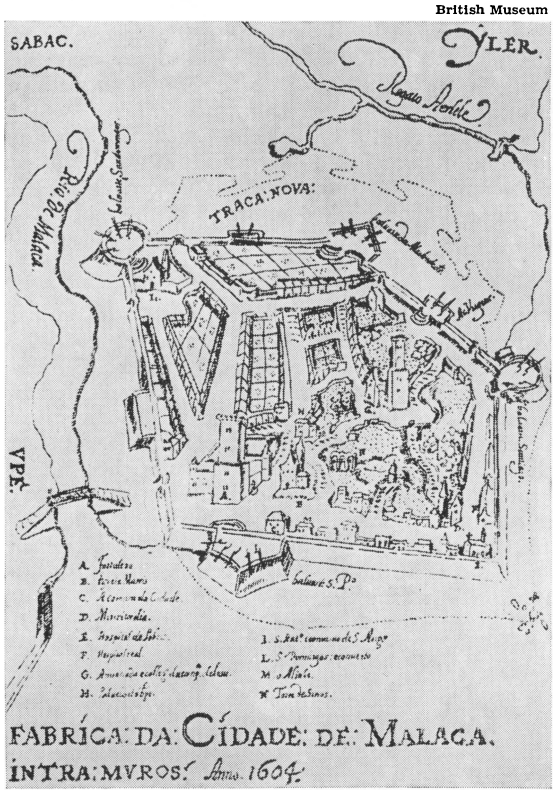
According to local traditions, Parameswara, a Sumatran prince, founded Malacca in the 1390s. He fled from enemies in Sumatra and took refuge in Singapore. But the ruler of Patani, or Pahang, expelled him from the island, and he moved northwards to Malacca. Parameswara was converted to Islam as a result of his marriage to a daughter of the Muslim Sultan of Pasai in Sumatra.

Parameswara developed Malacca into a flourishing centre of trade, and the sultans who succeeded him extended their authority over the Malay Peninsula and much of the northern coast of Sumatra. As a result, they controlled the Strait of Malacca and all the shipping that passed through the strait. Traders from many countries gathered in Malacca. The city's warehouses contained camphor, pearls, sandalwood, and spices from the Malay Archipelago, textiles from India, tapestries and incense from Arabia, silk and porcelain from China, and ivory and precious stones from Thailand.

European Influences

The Portuguese. During the Middle Ages, merchants in northern and western Europe could obtain the products of south-eastern Asia only from middlemen in the Mediterranean ports of Genoa and Venice. Traders carried goods along routes dominated by Arab, Indian, Persian, and Turkish Muslims. In the late 1400s, the Portuguese embarked on a series of expeditions in hopes of controlling the trade routes to Asia and securing a monopoly of the spice trade for themselves. At the same time, they wanted to convert people to Christianity and to establish alliances against the Muslims with the legendary Christian kings who supposedly lived in parts of Asia.

Malacca was a Portuguese fortress until 1641. The geographer Manuel de Erédia made this map of the city in 1604.
British Museum



In 1498, the Portuguese explorer Vasco da Gama made his way to Calicut, on the south-western coast of India (see DA GAMA, VASCO, in the main volumes). After 1504, the Portuguese won control of the trade of the Indian Ocean and the Arabian Sea. From their bases on the Indian coast, they attacked Arab and Turkish merchant ships.

In 1509, Afonso d'Albuquerque was appointed governor of Portuguese India. He realized the strategic value of Malacca for control of the spice trade. In 1511, he invaded and captured Malacca. He also sent an expedition to the Moluccas, and established trading posts on the islands of Ternate and Tidore. From Malacca, the Portuguese sent ambassadors to Burma and Thailand, and obtained permission to trade in the northern part of the Malay Peninsula. In the south of the peninsula, they faced opposition from Mahmud, the Sultan of Malacca, who had escaped when the city fell in 1511. He settled in the Riouw Archipelago, and tried to control trade through the Strait of Singapore and to recapture Malacca. The Portuguese attacked him in 1523, and he fled to Sumatra, where he died.

Mahmud's elder son had settled in Perak and established his own sultanate. Another son moved to the area near the Johor River and established the Johor-Riouw sultanate. For more than 100 years, the Portuguese fought wars against the sultans of Johor-Riouw, the sultans of Aceh, in Sumatra, and the Javanese. Fortunately for the Portuguese, the local powers were too jealous of each other to form an effective alliance against them.

The Portuguese remained in Malacca until the Dutch drove them out in 1641. Their main aims had been to control trade from forts and trading posts, and to convert the people to Christianity by sending out missionaries from these bases. They were successful in trade, but less successful in missionary activities. In fact, they helped to strengthen Islam, because many people in the region adopted the Muslim faith more fervently in order to show that they were determined to resist the Christian Europeans. Portuguese cultural and religious influences made a lasting impact only in Malacca, where the Portuguese authorities encouraged their soldiers to marry Asian girls.

The Dutch were also attracted by the prospects of trade in south-eastern Asia. In 1596, a Dutch expedition under Cornelis de Houtman reached Bantam in western Java. Dutch ships began to visit the area regularly, taking care to sail to the south of routes patrolled by Portuguese ships. In 1601, the Portuguese tried to drive out the Dutch, but failed. In 1602, Dutch merchants formed the Dutch East India Company, and, in 1603, the company's fleet defeated the Portuguese off the coast of Johor. In

Radio Times Hulton Picture Library

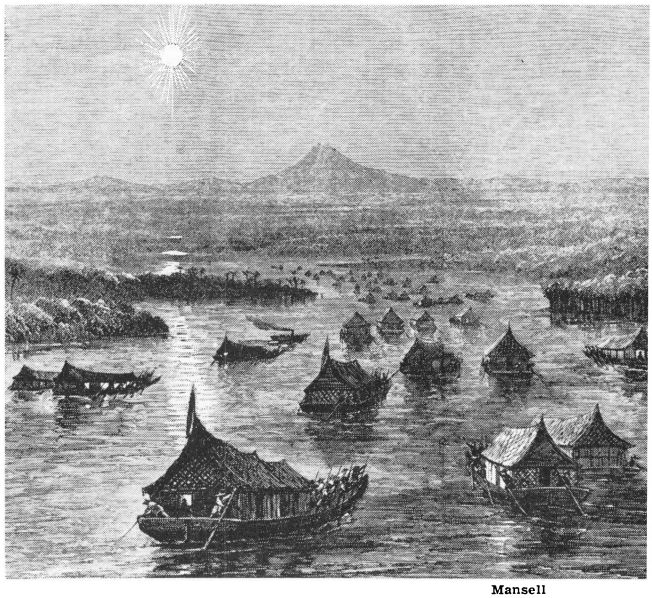
Singapore became the capital of the British Straits Settlements in 1830. This engraving shows the city 15 years later.

1606, the Dutch attacked Malacca, but the Portuguese successfully resisted. For the next 35 years, the Dutch and Portuguese struggled for power in the Malay Peninsula. Finally, in 1641, the Dutch conquered Malacca, helped by the Sultan of Johor.

The Dutch made trade agreements with the tin-producing states of Kedah, Perak, and Selangor, in Malaya, and Ligor and the island of Junk Ceylon (now Phuket), in southern Thailand. By the late 1600s, the Dutch controlled much of the trade in the Malay Archipelago. But the Dutch East India Company achieved its mastery at considerable expense. The company failed to yield the handsome profits its shareholders expected. It had to play a part in local politics in order to safeguard trade. As a result, it had to bear heavy military and administrative costs. In addition, many Dutch officials were corrupt, and mismanaged the company's affairs. Finally, in 1799, the Dutch government wound up the company and took charge of its territories.

During the 200 years of Dutch influence, various local kingdoms rose and fell. In the early 1600s, the strongest sultanate in the region was the sultanate of Aceh in Sumatra. It dominated Kedah, Pahang, and Perak, as well as the northern and eastern coasts of Sumatra. Between 1613 and 1615, the Acehnese destroyed the capital city of the Johor-Riouw sultanate, on the banks of the Johor River. But, in 1629, the Sultan of Johor-Riouw joined forces with the Portuguese to crush the Acehnese fleet. The sultanate of Aceh then began to decline.

By the 1640s, Sultan Abdul Jalil of Johor-Riouw controlled Pahang, in northern Malaya, and some parts of Sumatra. He tried to strengthen his position by forming alliances with the sultans of Aceh and Jambi in Sumatra. But, in the 1670s, he quarrelled with the Sultan of Jambi, who attacked and destroyed the capital city of Johor. Abdul Jalil fled to Pahang, and died soon afterwards. His nephew Ibrahim continued the war against Jambi from the island of Riouw. He was short of trained soldiers and was forced to hire Bugis warriors from Sulawesi. The Bugis warriors sacked Jambi.



Mansell

British Troops sailed up the Perak River in 1874 and put pressure on the Sultan of Perak to accept a British adviser.

In 1699, the last ruling member of the royal family of Johor-Riouw was murdered. The *bendahara* (chief minister) of Johor-Riouw succeeded to the throne, and ruled with the title of Sultan Abdul Jalil Riayat Shah. In 1717, Raja Ketjil, the ruler of Siak in Sumatra, removed Abdul Jalil Riayat Shah from power, and took over the Johor-Riouw sultanate. But he ruled for only five years. In 1722, a Bugis chief, Daing Parani, drove Raja Ketjil from Riouw, and placed a son of Abdul Jalil Riayat Shah on the throne of the sultanate. For some time afterwards, the Bugis were the real rulers of Johor-Riouw.

The Bugis were among the most skilful sailors and most fierce warriors in south-eastern Asia. After Sultan Ibrahim of Johor had invited them to Malaya in the 1680s, they found that the region could provide them with plenty of opportunities for conquest and settlement. By 1745, they held considerable power in Kedah and Perak, as well as in

Johor-Riouw. In addition, a Bugis sultan ruled Selangor. In 1784, under their greatest leader, Raja Haji, the Bugis besieged the Dutch in Malacca for four months. Soon afterwards, the Dutch retaliated by attacking Selangor and Riouw and removing the Bugis from power. But, in 1785, the Bugis Sultan of Selangor regained control of his state.

The British became interested in south-eastern Asia a short time before the Dutch. In 1600, British traders formed the British East India Company to conduct trade in the Indian Ocean. In 1601, a British expedition under James Lancaster reached Bantam in western Java. For the next 20 years, the British and Dutch East India companies competed with each other for the trade of south-eastern Asia. Eventually, the Dutch proved the stronger power in the area, and the British withdrew and concentrated on India. Throughout the 1600s and 1700s, British traders operating independently of the British East India Company continued to visit Malaya and the Malay Archipelago.

By the late 1700s, the British East India Company controlled much of India and the Indian Ocean, and had extended its activities to China. The idea of re-establishing an official base in south-eastern Asia attracted the British for three reasons. They wanted a naval base on the sheltered side of the Bay of Bengal, a port on the trade route to China, and a trading post in the Malay Archipelago.

After unsuccessful attempts to establish bases on the islands of Balembangan and Labuan off the coast of northern Borneo, the company eventually chose the island of Penang, near the coast of Kedah. In 1786, a British merchant captain, Francis Light, leased Penang from the Sultan of Kedah, and promised to protect him against attacks from Thailand. But the British East India Company refused to honour Light's promise. The Sultan tried to regain possession of his island in 1791. But his attempt failed, and he agreed to cede Penang to the company in return for an annual rental.

Between 1793 and 1815, Britain was almost continuously at war with France. The Netherlands fell to France, and the British felt justified in occupying Dutch bases in the archipelago. For a time, they concentrated on building up Batavia (now Jakarta) at the expense of Penang. But, after the wars, the British restored the Dutch bases and turned their attention again to the Malay Peninsula.

Throughout this period, the political situation within the Malay Peninsula was extremely complex. Thailand was the main power in the north, and the Thai king claimed authority over the states of Kedah, Kelantan, and Trengganu. Perak was a Malay state, but suffered some interference from the Bugis in Selangor. Selangor itself was ruled by a Bugis sultan. Inland from Malacca, several small states occupied by Minangkabau people from Sumatra were beginning to form a loose confederation that later became the state of Negri Sembilan. At the same time, Pahang and Johor were both rapidly becoming separate states instead of being parts of the Johor-Riouw sultanate. The sultan of Johor-Riouw retained authority only on the island of Riouw, where he lived. The sultan's bendahara ruled Pahang, and another court official, the *temenggong,* ruled Johor itself.

The Growth of British Power

The Straits Settlements. Penang failed to fulfil the hopes of its British founders because it was too far away from the main centres of trade. In 1818, the British East India Company sent Sir Stamford Raffles, one of its agents, to find another suitable trading site at or near Riouw.

Raffles discovered that the Dutch had forestalled him at Riouw itself, and moved on to the island of Singapore, which also belonged to the Johor-Riouw sultanate. At that time, the sultanate was ruled by Abdul Rahman, who was the younger son of the previous sultan, Mahmud. The Bugis adviser to Mahmud had installed Abdul Rahman on the throne, and deprived Mahmud's elder son, Hussein, of his birthright. When the Dutch made a treaty with Riouw in 1818, they accepted Abdul Rahman as the legitimate sultan. After arriving in Singapore, Raffles made certain that the Dutch treaty applied only to Riouw. He invited Hussein to be installed as Sultan of Johor, and Hussein was proclaimed sultan in Singapore in 1819.

Hussein, in return for annual allowances paid both to him and to the Temenggong of Johor, allowed the British to establish trading posts in Singapore and Johor. The Dutch protested, but Singapore was an ideal commercial site and soon prospered and became self-supporting. In 1824, the British bought the island outright from Hussein.

In the same year, the British made a treaty with the Dutch, and agreed to exchange the British bases in Sumatra for the Dutch bases in India and Malacca. In addition, the Dutch withdrew their objection to the British base at Singapore, and both sides agreed not to cede territory to any other country. After 1826, the British bases at Penang, Singapore, and Malacca came to be known as the *Straits Settlements.* Singapore flourished, Penang progressed slowly, and Malacca slowly declined.

Government from India. Until 1858, the British East India Company administered the Straits Settlements. The company had a policy of not interfering in Malay politics. But, gradually, it was forced to intervene in local conflicts in order to protect its own trading interests.

In 1818, the Raja of Ligor in Thailand ordered the Sultan of Kedah to attack Perak on behalf of the Thais. The Sultan refused, and, in 1821, the Thais invaded Kedah, forcing him to flee to Penang. The British protected him but gave him no official help against the Thais. The British East India Company was willing to recognize Thai claims to Kedah, as long as the Thais did not try to extend their power to Perak and Selangor.

The Thais constantly asked for British help against piracy and the attempts of the deposed Sultan to recover his throne in Kedah. In 1842, the British persuaded the Sultan to accept the authority of the Thais. At the same time, they made clear that they would not give the Thais any further help.

Under these circumstances, the Thais allowed the Sultan to resume his rule. They turned their attention from Kedah to Kelantan and Trengganu.

Soon afterwards, the British became involved in a civil war in Pahang. In 1858, the Bendahara of Pahang died, and his sons, Tun Mutahir and Wan Ahmad, fought for the right to succeed him. Tun Mutahir expelled Wan Ahmad from Pahang. The exiled brother obtained support from the Thais, who hoped to use him to secure control over Pahang. At the same time, the Thais tried to secure control over Trengganu by imposing the deposed Sultan of Lingga as ruler. The British bombarded the fort of Trengganu in 1862. They demanded the surrender of the Sultan of Lingga, and a Thai promise not to interfere in Pahang. In 1863, the Thais withdrew the Sultan of Lingga from Trengganu. Wan Ahmad became Bendahara of Pahang when Tun Mutahir died.

In 1858, the government of India passed from the control of the British East India Company to the India Office, a British government department in London. The India Office remained as determined as the company had been to avoid involvement in Malay affairs.

But, within the Straits Settlements, particularly in Singapore, many people argued that the British had a duty to maintain peace and harmony in the Malay states. In 1867, the government of India tried to interfere with Singapore's policy of free trade. British merchants protested, and, as a result, the British government transferred control of the Straits Settlements from the India Office to the Colonial Office, another British government department.

The Residency System. At first, the Colonial Office maintained a policy of non-intervention, and the states of Malaya continued to be torn by strife and disorders. In Perak, Selangor, and Negri Sembilan, many Chinese immigrants worked in tin mines. They formed secret societies that engaged in crime and fought among themselves. In addition, after the death of the Sultan of Perak in 1871, the Malays in the state were at war with each other over the question of who should succeed to the throne.

In 1873, after disorders in various states had threatened to cut off tin supplies to Singapore and Malacca, Chinese merchants asked the British Colonial Office to protect their trade. They pointed out that the richest parts of Malaya were in the hands of lawless mobs. As a result of this request, British policy changed. The Colonial Office instructed the Governor of the Straits Settlements to put pressure on the Malay rulers to end the disorders.

In 1874, the Sultan of Perak agreed to accept a British official, called a *resident,* and follow his advice on all matters except those concerning Malay customs and religion. The resident's job was to control general administration and the collection of revenue in the state. In the same year, the British persuaded the Sultan of Selangor to accept a British official, Sir Frank Swettenham, as an unofficial adviser. Swettenham so impressed the Sultan with his tact, friendliness, and ability, that the Sultan decided to ask for an official resident. The power of the residents gradually increased, and they brought order and prosperity to Perak and Selangor.

In 1888, the ruler of Pahang rather unwillingly accepted a resident. Some of the local chiefs rebelled against the system, but, after a long campaign that extended into Kelantan and Trengganu, the British captured the chiefs and deported them to Thailand. At the same time, the British acknowledged the fact that the Thais had authority in Trengganu.

In 1895, the small Minangkabau states that extended inland from Malacca agreed to merge together. They accepted the ruler of one of the states as the ruler of all the nine states of Negri Sembilan, and the ruler agreed to take the advice of a British resident.

The Federated Malay States. In 1880, the Colonial Office reviewed the residency system. It decided that the British could not possibly withdraw from Malaya. Migrants had settled in the region and people had invested money there in the expectation that the British would stay. But the Colonial Office also believed that direct colonial rule was unsuitable. Eventually, in 1895, the British persuaded the sultans of Pahang, Perak, Negri Sembilan, and Selangor to federate. The British established a large central headquarters at Kuala Lumpur under a resident-general. His task was to control the activities of the residents in the various states. The British assured the sultans that the change would not affect their rights and privileges. But, in practice, it strengthened British control.

The Unfederated Malay States. Until 1909, the states of Kedah, Kelantan, Perlis, and Trengganu were under the control of Thailand. In the late 1800s, the British began to fear that Thailand might fall to the French, who were powerful in Cochin-China, Cambodia, and Vietnam. Eventually, the British and French agreed to keep Thailand independent. In 1909, Thailand agreed to surrender its rights over Kedah, Kelantan, Perlis, and Trengganu. In return, Britain gave up its rights in Thailand and granted the Thai government a loan of £4 million for railway construction.

The rulers of Kedah, Kelantan, Perlis, and Trengganu refused to join the federated states. As a result, the British appointed advisers rather than residents to the states, and their rulers enjoyed much more independence than the rulers of the federated states. But the unfederated states also received fewer benefits from British rule than the federated states. Kelantan and Trengganu, in particular, did not share in the prosperity that the rest of Malaya enjoyed in the early 1900s.

Johor also remained outside the federation, even though the British had been on friendly terms with the sultans of Johor since the early 1800s. In 1895, the Sultan of Johor introduced a written constitution for his state. It provided for a Council of Ministers chosen from Malay Muslims, and a Council of State that was open to all Johor citizens. In 1912, the Sultan added an Executive Council modelled on the executive councils that existed in British colonies. Finally, in 1914, he agreed to accept a British adviser.

Results of British Influence. From 1914 until World War II, Malaya consisted of three types of territories. Negri Sembilan, Pahang, Perak, and Selangor formed the *Federated Malay States.* Johor, Kedah, Kelantan, Perlis, and Trengganu, formed the *Unfederated Malay States.* Malacca, Singapore, Penang, and Province Wellesley, a small area on the mainland opposite Penang, formed the *Straits Settlements,* which was a British colony.

Under British administration, Malaya had a stable government and made steady progress. Tin mining became mechanized and modernized, and, between 1904 and 1929, exports of tin increased from about 52,000 tons to 70,000 tons. Rubber had been introduced into the area as early as 1877, but it did not become a major industry until after 1910. Then it expanded rapidly, and, by 1920, Malaya produced more than half the rubber in the world. The tin and rubber industries brought great wealth to Malaya, and government authorities used some of the wealth to build roads, railways, and schools.

The British in Borneo

Early History. Historians know little about the early history of Borneo. By the 600s, it had developed trade links with China that lasted until the 1300s. Borneo also had contact with Indian traders, and Indian influences made an impression on the coastal areas of the island.

When the Portuguese captured Malacca, in 1511, many Muslim traders transferred their activities to Brunei. Brunei soon became the main power in the island of Borneo, and Europeans used the name *Brunei* to refer to the whole island. Brunei's wealth attracted the Spaniards, but their attacks on the state in 1577, 1580, and 1645 were all unsuccessful. During the early 1600s, Sultan Hasan of Brunei brought his sultanate to a peak of power and prestige. But, in the 1700s, Brunei's importance declined as it lost trade to British and Dutch trading posts. The coast of Borneo became a haunt of pirates and slave traders.

In 1824, the British and Dutch agreed to cooperate in suppressing piracy in the region, but pirates continued to harass merchant ships off the coast of northern Borneo. As a result, Bugis, Chinese, and British merchants in Singapore complained to the British government about the lack of protection for their property.

British Influence in Sarawak. In 1839, James Brooke, a former employee of the British East India Company, landed in Borneo with the intention of carrying out scientific research and exploration. He found that the people in the region were in revolt against their governor, a vassal of the Sultan of Brunei. Brooke suppressed the revolt, but won the loyalty of the Dyaks and Malays who had rebelled. The Sultan rewarded him by appointing him governor with the title of rajah. He gave him authority over the area from Cape Datu to the Samarahan River, near Kuching.

Brooke saw that Brunei and Labuan would be ideal bases for steamships on the trade route to Hong Kong, and, in 1844, Sultan Omar of Brunei offered to cede Labuan to the British. But, in 1846, the Sultan murdered his uncle, Muda Hashim, who had formed a strong friendship with Brooke in 1839. With the help of the British navy, Brooke attacked and captured Brunei, and the Sultan fled. He later returned to his capital. In 1847, he ceded Labuan permanently to Britain.

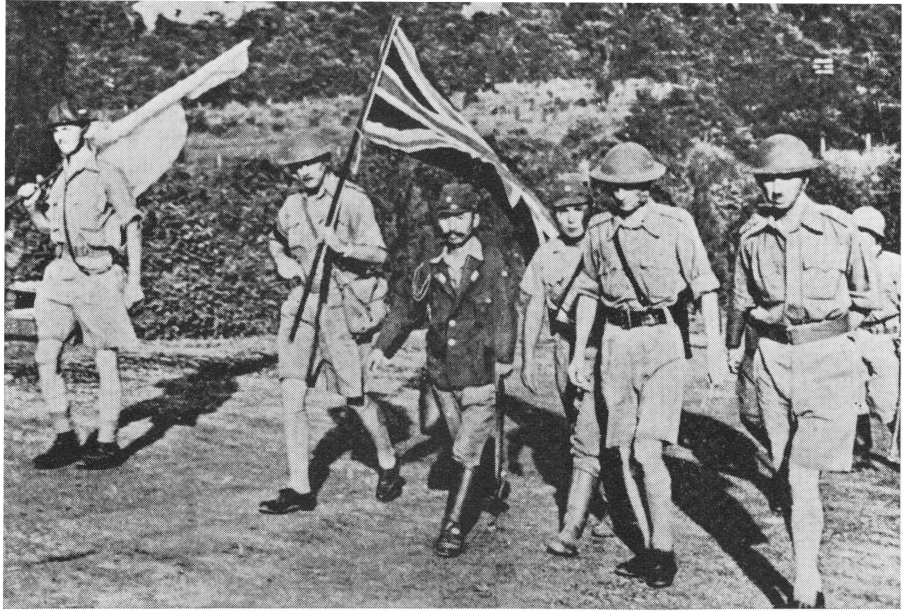
In 1849, Brooke acted decisively against the Sea Dyaks, who were the most troublesome pirates in the region. But he allowed many of them to escape, and his leniency won the Sea Dyaks to his side. In 1857, when the Chinese in Kuching rioted, and again in 1859, when Malay chiefs plotted a rebellion, the Sea Dyaks showed their loyalty to Brooke.

Singapore benefited from the suppression of piracy, and developed new trade links with Sarawak and Brunei. In 1850, the United States recognized Sarawak as an independent state, and, in 1864, Britain appointed a consul to Brooke's court.

When Rajah Sir James Brooke died, in 1868, his nephew, Sir Charles Brooke, succeeded him. He ruled for 49 years, and extended the frontiers of Sarawak to its present boundaries. In 1917, his son, Sir Charles Vyner Brooke, became rajah. He improved the administration of Sarawak, and gradually introduced more education and social and medical services for the people of the area. By 1941, the state was in a sound financial position as a result of its exports of rubber, pepper, sago, and petroleum. In that year, the Rajah introduced a new constitution that ended his absolute powers. But before the constitution could take effect, the Japanese invaded Borneo and took control of the country.

British Influence in Sabah. During the 1600s, the sultans of Brunei ruled most of what is now Sabah. But, in 1704, the Sultan of Brunei granted the Sultan of Sulu some territory in return for help against rebels in the region. When the British began to look for a base in northern Borneo in the 1760s, they negotiated with the Sultan of Sulu. He ceded to the company the island of Balembangan and all the territory obtained from the Sultan of Brunei in 1704. The British occupied Balembangan for only brief periods during the next 50 years. Eventually, they abandoned it. In 1775, they established a base on the island of Labuan. In the 1840s, Labuan became a British colony under the government of the Straits Settlements.

American traders had been active in Borneo as early as the late 1700s. In 1865, an American consul arrived in Brunei. He obtained a lease of land and sold it to the American Trading Company of Borneo, an American-Chinese enterprise. The company was a failure. But, in 1875, Joseph Torrey, the only remaining director of the company, succeeded in interesting an Austrian, Baron Overbeck, in the venture. Overbeck bought out Torrey's rights in the company and went into partnership with Alfred Dent, a British businessman. In 1877, with British financial and official support, Overbeck and Dent obtained grants of additional territory from the Sultan of Brunei and a local ruler. The Sultan of Sulu, who was the effective ruler of these territories, granted them a perpetual lease.



The British Surrender to the Japanese at Singapore in 1942 marked the end of European supremacy in southeast Asia. The Japanese celebrated their victory in *The Shonan Times,* a newspaper published in Singapore.
Sydney Ure-Smith; *Straits Times*

The company's next decision, to open trading stations at Sandakan, Tempasuk, and Papar, brought immediate protests from the Spaniards and the Dutch. The Spaniards protested because Spain claimed authority over all the territories in the sultanate of Sulu. But, in 1885, Spain gave up its claims in Borneo in return for British recognition of Spanish rule in Sulu. The Dutch did not reach final agreement with the British until 1915, when they established a boundary between British North Borneo (now Sabah) and Dutch Borneo (now Kalimantan).

Overbeck eventually sold his share of the company to Dent. In 1881, the company, with its name changed to the British North Borneo Company, received a royal charter from the British government. The charter stipulated that the company should follow the advice of the British government.

Throughout the 1880s, the British North Borneo Company and Sir Charles Brooke in Sarawak took over more and more of the lands belonging to the Sultan of Brunei. In 1888, the British government established protectorates over Brunei, Sabah (which they called North Borneo), and Sarawak. Brooke and the British North Borneo Company continued to acquire more territories until 1905, when Brunei, Sabah, and Sarawak assumed their present boundaries.

The British North Borneo Company made gradual progress in its efforts to establish law and order in Sabah. It encouraged Chinese immigrants to settle in the area. Tobacco was an important export crop in the late 1800s and early 1900s. Later, rubber and timber were Sabah's main products. By 1941, the region was fairly prosperous.

British Influence in Brunei. Many people in Brunei had objected to the Sultan's decision in 1888 to make his state a British protectorate. At that time, he had agreed to let Britain control his foreign policy provided that he retained control over home affairs. In 1905, when prospectors discovered petroleum in Brunei, the Sultan signed a new treaty with Britain and accepted a British resident. The British resident provided him with advice on all matters except the Muslim religion and Malay customs.

THE SHONAN TIMES

No. 1. FEBRUARY 20, SHOWA 17. 5 cents.

JAPAN'S POSITION IMPREGNABLE

Effect Of Fall Of Singapore

Gen. Shunroku Hata Issues Verbal Statement

GEN. Shunroku Hata, Commander-in-Chief, Japanese Forces in China, in a verbal statement at 3.30 p.m. Wednesday, said that with the fall of Singapore, Japan is now steadily established in an impregnable position to conduct the current war. Both Britain and the United States can no longer wage an offensive war against Japan in the South-west Pacific.

Joint action by Britain, America, Australia, India, China, and the Dutch East Indies has now collapsed to its very foundations. The Chungking regime, which has so far continued its resistance in concert with the Anglo-American powers, has been deprived of important bases and

British Reverses In Malaya

Political Blunder In Colonies

Stockholm.

THE series of British reverses in Malaya is due to a British

Australia Further Isolated

Saigon.

AUSTRALIA will be further isolated from the United States. Canberra announced to-day the suspension of radio telephone service with these countries with effect from Feb. 21. The Department of the Post Master-General says that the step has been decided upon by the War Cabinet for reasons of security. It is pointed out that the Australian radio telephone service to other countries has already been suspended.

Enemy Destroyer Sunk Yesterday

A FEW enemy destroyers were sighted to the south of Shonan Island. One was sunk while a second received several hits. Two enemy transports were also sighted,

THE SHONAN TIMES

FEBRUARY 20, SHOWA 17.

OUR FIRST ISSUE

To Our Friends—The People Of Malaya

In this fortress of Singapore (Shonan) and the Peninsula of Malaya, all arms and military objectives are under the control of the Nippon troops.

The Press, which is the most powerful organ for the expression of views, comes under the domination of the Nippon troops. By the wish of the Chief Nippon Commander, we are issuing the Shonan Times.

It is the wish of the Commander that the civilization of the people here shall be preserved, and that they shall enjoy good fortune and happiness with the restoration of peaceful conditions.

The policy of injustice, unrighteousness and cunning shall disappear automatically,

Imperial War Museum

The Japanese Surrender at Singapore in 1945 returned control of Malaya and Singapore to British administrators.

The Road to Independence

The Rise of Malay Nationalism. By 1920, almost all of south-eastern Asia, except Thailand, was under American, British, Dutch, or French control.

In Malaya, the Malays had watched their lands change before their eyes as the British introduced the estate system of agriculture to grow various export crops. Most of the workers on the large estates and in the country's industries were immigrants from China and India. Most Malays continued to make a bare living as farmers on small plots of land. Increasingly, they found themselves among the poorest people in their own country.

In the rest of Asia, people reacted against European rule by forming nationalist movements. But, in Malaya, the Malays felt loyal to their own states and their own sultans. Before World War II, they were not interested in politics or in nationalist ideas. In addition, the British administration was pro-Malay, and, as a result, the Malays tended to resent the Chinese and Indians in their country more than they resented the British.

In contrast to the Malays, both the Chinese and the Indians in Malaya took a keen interest in politics, especially politics in their home countries. In 1941, the three main groups of people in Malaya —Chinese, Indians, and Malays—were widely separated by differences in education, language, and politics. The British administration provided the only links among them.

In World War II, the Japanese invaded and occupied Malaya, Sabah, Sarawak, and Singapore early in 1942. The Japanese tried to win Malay leaders to their side, but they did not succeed in stirring up hostility towards the British. Japanese rule was much more harsh and chaotic than British rule had ever been. The main result of the Japanese efforts to encourage Malay nationalism was to widen the divisions among the racial groups in Malaya. The Malay nationalism that emerged with Japanese encouragement was anti-Chinese rather than anti-British. It was a racial and religious movement supported by the poor Malays who lived in country districts. This anti-Chinese nationalism, and the Chinese reaction to it, shaped much of Malaya's later history.

Post-War Politics in Malaya. The British returned to Malaya in 1945, and began to prepare the country for self-government. In 1946, as a first step, they introduced plans for a Malayan Union under British protection. The union was to consist of the nine Malay states and Malacca and Penang, which had previously been part of the Straits Settlements. Singapore, with Christmas Island and the Cocos (Keeling) Islands, was to be a separate Crown colony. People of all races who had been born in Malaya or had lived there for 10 years were to have equal citizenship rights with the Malays. The Malays immediately protested because they believed that the proposal would threaten their privileged position and the power of the sultans. As a result of this protest, the British government abandoned its plans for a Malayan Union.

In 1947, the British proposed that the Malayan states should form a federation under a British high commissioner. The Federation of Malaya would have an executive council and a legislative council, with members chosen from the Chinese and Indian as well as the Malay communities. All Malays would be full citizens of the federation. Chinese and Indians who had been born in Malaya or had lived there for 15 years would also be full citizens.

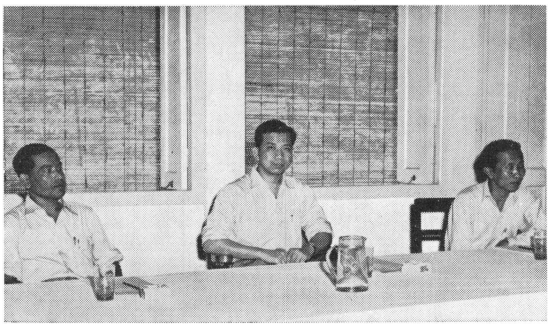
The Malays still objected to the provisions for citizenship because they claimed that the Chinese could be citizens of both Malaya and China. At the same time, the Chinese and the Indians resented the fact that the proposed constitution still gave the Malays a special position. The Malayan Communist party, which obtained most of its support from the Chinese, strongly opposed the constitution. In spite of these objections, the Federation of Malaya came into existence in February, 1948. In the same year, the communists in Malaya began an armed uprising. The communists had good organization and large supplies of arms and ammunition. They had acquired both during World War II, when the British had supported the communist Malayan Peoples' Anti-Japanese Army.

The Emergency. In June, 1948, the British authorities declared a state of emergency and declared the Communist party illegal in Malaya and Singapore. For the next three years, the Malayan Races Liberation Army (the armed element of the communist organization) and the Min Yuen (the civilian element) launched terrorist attacks on rubber plantations, tin mines, and transport facilities.

In 1951, terrorists assassinated the British High Commissioner, Sir Henry Gurney. General Sir Gerald Templer, who replaced him, increased military and police operations against the terrorists. On his orders, the Chinese living in country districts moved into new villages, surrounded by barbed wire and guarded by police. They had no opportunity to supply food to the terrorists. As a result, the terrorists were forced to move deeper into the jungle in order to grow food. Their gardens could be spotted easily from the air, and government security forces were rapidly deployed to hunt them down. Eventually, most of the terrorists surrendered, and, in 1960, government authorities declared that the emergency was ended.

Merdeka. During the state of emergency, the British realized that military operations alone would not defeat the communists, and that nationalism was the only force that could resist communism. For this

Chin Peng, *centre,* **the Malayan communist leader, refused to accept government terms for ending the Emergency in 1955.**
Malaysian Information Services



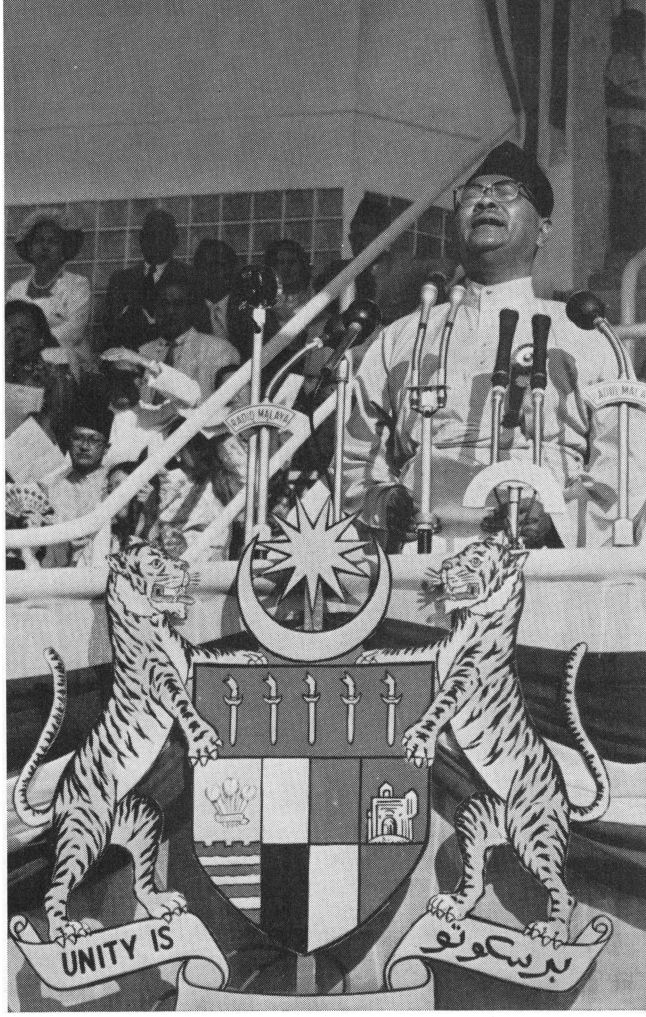
reason, they encouraged nationalist movements and brought the country nearer to *merdeka* (independence). In 1955, the first elections to the legislative council took place, and, in 1957, the Federation of Malaya became an independent country within the Commonwealth.

Post-War Politics in Borneo. After World War II, both Sarawak and Sabah (North Borneo) became British colonies, and Rajah Sir Charles Vyner Brooke and the British North Borneo Company gave up their rule in the area. The British governors gradually introduced more democratic forms of government, and, by 1950, both states had their own executive and legislative councils.

Brunei continued to be ruled by its sultan. He acted on the advice of the British high commissioner, who was also governor of Sarawak. But, in 1959, a new constitution granted the Sultan of Brunei complete independence in home affairs. The British government continued to be responsible for the defence and foreign policy of the sultanate.

Post-War Politics in Singapore. The British continued to govern Singapore as a full British colony until 1959. But, throughout the 1950s, they introduced a series of political reforms that gave the people on the island a greater degree of self-government. In 1948, only 6 of the 22 members of the colony's legislative council were elected. The British governor nominated most of the others. In 1954, the British introduced a new constitution under which the people would elect most of the council's members. The chief minister of the council was to be the leader of the political party that obtained most votes in the election.

In 1956, David Marshall served as chief minister, and, in 1957, he was succeeded by Lim Yew Hock. Both of them asked the British to grant Singapore full independence in home affairs. At first, the British refused. They believed that the communists had too much influence in Singapore. Eventually, they granted the politicians' requests. In 1959, Singapore gained internal self-government. In a general election in that year, the People's Action party (PAP), led by Lee Kuan Yew, won 43 out of 51 seats in the legislative assembly. As chief minister, Lee Kuan Yew immediately began to strive for complete independence through union with Malaya.



Keystone

Tunku Abdul Rahman proclaimed Malaya's independence at the Merdeka Stadium in Kuala Lumpur on Aug. 31, 1957.

Malaysia

The Proposal for Malaysia. In May, 1961, Tunku Abdul Rahman, the prime minister of Malaya, declared in a speech in Singapore that Malaya should have closer political and economic ties with Brunei, Sabah, Sarawak, and Singapore. The idea of closer co-operation in some form of federal organization was not new. It already had the support of Lee Kuan Yew's People's Action party in Singapore, because federation would end Singapore's existence as a British colony.

In Malaya, most Malays welcomed Abdul Rahman's proposal. It seemed to offer a way of acquiring a share in the economic wealth of Singapore, and of balancing the 1,400,000 Chinese in Singapore with the various non-Chinese people who lived in Sabah and Sarawak. They realized that if they merged only with Singapore, the Chinese would be much the largest racial group in the federation and would have overwhelming political power.

Brunei, Sabah, and Sarawak had relatively small populations and could scarcely survive as independent countries. Federation with Malaya offered them an opportunity for secure and prosperous independence as part of a larger nation. But people in Sabah and Sarawak had some reservations about the idea of federation. They feared increased Malay control over their affairs, and they did not want Malay as their national language or Islam as their national religion.

In July, 1961, representatives of Malaya, Singapore, Brunei, Sabah, and Sarawak met in a Malaysia Solidarity Consultative Committee to discuss the possibility of federation. Early in 1962, a team of British observers, led by Lord Cobbold, visited Borneo to find out the views of the people in the region. They reported that most people in Sabah and Sarawak were in favour of Malaysia, as long as the constitution of the federation included safeguards on matters of special concern to them. Soon afterwards, the British and Malayan governments

Associated Press

Sukarno of Indonesia had friendly talks with Tunku Abdul Rahman in July, 1963. Later, he violently opposed Malaysia.

announced that they intended to establish Malaysia on Aug. 31, 1963, the sixth anniversary of Malaya's independence.

Opposition to Malaysia. The decision to form Malaysia aroused opposition from a variety of sources for a variety of reasons. Communists in Malaya, Singapore, and Borneo opposed it because they realized that an anti-communist central government would have control over internal security even in the areas where the communists were strongest. In Singapore, Lee Kuan Yew's People's Action party fought a long struggle against the communists over the question of federation. But, in a referendum in 1962, the people of Singapore showed their support for Malaysia, and they confirmed this support in 1963 by re-electing a People's Action party government.

In Brunei, Sabah, and Sarawak, some people urged that the three states should first become independent, and then consider joining Malaysia at some later date. In December, 1962, Azahari, a Brunei politician, began a revolt with the aim of seizing independence outside the federation of Malaysia. But the revolt obtained little support and soon subsided.

One of the most bitter opponents of Malaysia was President Sukarno of Indonesia. He condemned the proposal for federation as a "neo-colonialist" plot by which the British could grant a false form of independence while retaining real power for themselves. The government of the Philippines joined Indonesia in protests against Malaysia. The Filipinos claimed that the Sultan of Sulu had only leased Sabah to the British, and that it should be handed over to them as sole heirs of the Sultan's rights.

In February, 1963, Brunei announced that it had decided not to join the federation. The Sultan of Brunei had been unable to agree about the position that he would occupy among the various sultans in Malaya. Later in the year, Tunku Abdul Rahman met President Sukarno of Indonesia and President Macapagal of the Philippines in Manila. They agreed that a United Nations commission should be invited to visit Sabah and Sarawak to find out whether or not Malaysia was acceptable to the local people. Indonesia and the Philippines agreed to accept the commission's findings, and the date for the formation of Malaysia was postponed. The commission visited Borneo in August and September, 1963, and reported that the people supported federation with Malaya.

The Founding of Malaysia. The federation of Malaysia came into existence on Sept. 16, 1963. The new Malaysian parliament had 104 members from Malaya, 24 from Sarawak, 16 from Sabah, and 15 from Singapore. Sabah and Sarawak both obtained special guarantees of religious freedom, and agreement that English, not Malay, should remain their national language until they decided otherwise.

Indonesia and the Philippines continued to oppose Malaysia because they claimed that the United

Riot Squads in Singapore quelled disturbances among communist supporters and Malay and Chinese extremists after Singapore joined the federation of Malaysia.

Camera Press

Nations commission had not carried out its task properly. President Sukarno began a policy of *confrontation,* which involved sending small groups of soldiers on raids into Sabah, Sarawak, Singapore, and, later, the mainland of Malaya.

The Secession of Singapore. The main problems facing Malaysia arose from relations between Malays and Chinese within the country rather than from attacks by other countries. In Singapore, Malay extremists deliberately incited ill-feeling between the Malays and the Chinese, and exploited the Malays' sense of grievance at their own economic and educational position. Indonesian infiltrators working among the Malays, and Chinese communists working among the Chinese, made matters worse. *Communal* (racial and political) riots flared up in Singapore in 1964. The Singapore government quickly suppressed these disturbances.

Relations between the Singapore government and the federal government became worse when the Singapore People's Action party began to contest parliamentary elections in Malaya in 1964. Lee Kuan Yew demanded a "Malaysian Malaysia" and argued that the constitutional privileges granted to Malays were against the best interests of the federation. His claim that the People's Action party was the only party in Malaysia that really thought in terms of a multi-racial Malaysia antagonized Malay political leaders. The Singapore and federal governments also disagreed on financial questions.

By mid-1965, the argument between the two governments had become extremely heated, and Tunku Abdul Rahman realized that he could no longer control the statements and actions of Malay extremists, who were demanding stern action against the PAP leaders. He decided that Singapore would have to withdraw from the federation of Malaysia in order to avoid the possibility of more communal disturbances. Lee Kuan Yew reluctantly agreed. In August, 1965, Singapore left Malaysia and became an independent country. Abdul Rahman's decision angered Malay extremists in his own party, who believed that the Malays had a claim to Singapore and could have benefited from its wealth. At the same time, the people of Sabah and Sarawak had some misgivings that, without Singapore, Malaysia would be dominated by the Malays.

Developments in the Late 1960s. In June, 1966, new political leaders in Indonesia agreed to abandon the policy of confrontation against Malaysia. Malaysian leaders welcomed the opportunity to settle the dispute peacefully. The dispute officially ended on Aug. 11, 1966. In 1967, Malay became the sole official national language. Tunku Abdul Rahman suspended parliament following riots between Malays and Chinese in 1969. He resigned in 1970, naming Tun Abdul Razak as his successor. Parliamentary government resumed in 1971.

Aids to Learning

Related Articles in World Book include:

Main Volumes

East India Company
Malaysia
Singapore
Straits Settlements
World War II (The War in Asia and the Pacific)

HISTORY OF MALAYSIA

Australasian Volumes

See the *History* sections in the articles on the various states of Malaysia, such as Perak (History). See also the following articles:

BIOGRAPHIES

Abdul Rahman, Tunku
Abdul Razak bin Hussain, Tun
Brooke, Sir James
Erédia, Manuel Godinho de
Hang Tuah
Lee Kuan Yew
Raffles, Sir Stamford
Swettenham, Sir Frank
Templer, Sir Gerald

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Armed Services of Malaysia
Federation
Government of Malaysia
History of Indonesia
Malayan Emergency
Malays
Maphilindo
Political Parties of Malaysia
Singapore

Outline of this article is as follows:

I. **Ancient Times**
   A. Prehistoric Malaysia
   B. Early Trade
II. **Early Empires**
   A. The Empire of the Kings of Funan
   B. The Empire of Srivijaya
   C. The Empire of Majapahit
   D. The Founding of Singapore
III. **The Spread of Islam**
   A. The Coming of Islam
   B. The Malacca Sultanate
IV. **European Influences**
   A. The Portuguese
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   B. Government from India
   C. The Residency System
   D. The Federated Malay States
   E. The Unfederated Malay States
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   D. Merdeka
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   F. Post-War Politics in Singapore
VIII. **Malaysia**
   A. The Proposal for Malaysia
   B. Opposition to Malaysia
   C. The Founding of Malaysia
   D. The Secession of Singapore
   E. Recent Developments

Books to Read about this topic include:

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HISTORY OF NEW ZEALAND. The written history of New Zealand dates only from the 1790s, when European sealers and whalers first settled there. Its history before that time is shrouded in the mists of Maori legends and myths. Experts believe that the Maoris sailed from central Polynesia to New Zealand sometime between A.D. 950 and 1350.

The Dutch navigator Abel Tasman was the first European to see New Zealand, in 1642 (see TASMAN, ABEL JANSZOON, in the other Australasian volume). The British explorer James Cook sighted it in 1769 (see COOK, JAMES, in this volume). In 1840, Britain rather reluctantly decided to colonize the country, to bring law and order to whalers and traders who were exploiting the Maoris.

In the 1840s and 1850s, several British companies began planned settlement by sending a total of about 15,000 people—mainly English and Scottish emigrants—to New Zealand. The settlers and the Maoris were soon involved in serious disputes over land rights. These disputes led to the Maori Wars, the bitterest period in the country's history. In the 1860s, a gold rush attracted thousands more immigrants and brought great prosperity. In the 1880s, New Zealanders sent their first cargoes of frozen meat overseas. In this way, the country's huge export trade in farm products—the basis of its prosperity—began. In the 1890s, a Liberal government introduced the first important social reforms, and, in 1907, Britain recognized the achievement of full internal self-government by granting New Zealand dominion status. In World Wars I and II, New Zealand forces fought alongside British ones.

Between the wars, New Zealand experienced a boom, a depression, and then recovery. Between 1935 and 1949, a succession of Labour party governments introduced and developed a comprehensive programme of social services called *social security*. After World War II, many people realized that the country had to expand its manufacturing industries. Some heavy industries, such as the production of iron and steel, developed in the 1950s and 1960s.

The Maori Voyagers (950-1350)

The Maoris had no written language. They passed down by word of mouth their stories of where they came from, and when. In recent years, several scholars have examined the traditional tales of the Maoris with the aim of separating fact from legend.

Kupe. According to Maori traditions, one of their chiefs, Kupe, discovered New Zealand after setting out from Polynesia to pursue a giant octopus. Historians agree that the octopus was probably mythical. But some historians are prepared to believe that Kupe did exist about A.D. 950, and that he was, in fact, a great sailor. Diggings by archaeologists have proved that shortly after the time Kupe is supposed to have reached New Zealand, Polynesians were living there. Historians have called these inhabitants *moa hunters,* because they hunted the moa (see MOA in the main volumes). The Maoris claim that Kupe did not stay in New Zealand—after he had explored both the main islands, he returned to *Hawaiki,* an island in Polynesia that may have been Tahiti.

Toi. The Maoris believe that Whatonga, a nephew of the legendary sailor Toi, was blown out to sea from Hawaiki. In search of Whatonga, Toi sailed from Hawaiki to New Zealand, following Kupe's route. The Maoris believe that Toi and Whatonga settled with the people already living in New Zealand.

The Canoe Fleet. The Maoris believed that their

ancestors sailed to New Zealand from Hawaiki in a great fleet of canoes. Their legends suggest that these ancestors left Hawaiki because of quarrels, perhaps connected with food shortages.

Scholars agree that the theory of a mass migration from Hawaiki is an unlikely one. They believe that the Maoris probably made separate voyages to New Zealand over a period of up to a hundred years. Scholars do not agree about how and why the Maori voyagers decided to settle in New Zealand. Some scholars accept the traditional Maori belief that the voyages were intentionally made. Others, especially the New Zealand historian Andrew Sharp, claim that the voyages were unintentional. According to Sharp, the people who first settled New Zealand and other more remote Pacific islands were sailors who had been blown off course in a storm or had lost their way and were unable to return to their home islands.

The Explorers (1642-1827)

Tasman and the Dutch. The Maoris lived undisturbed by people from overseas until Abel Tasman sighted New Zealand in 1642. He was a sea captain serving with the Dutch East India Company. His two ships, the *Heemskerck* and the *Zeehaen,* reached New Zealand in December, 1642, on an exploratory voyage from Batavia, in the Dutch East Indies (now Jakarta, in Indonesia). Tasman sailed along part of the western coast of the South Island of New Zealand and then anchored in Golden Bay, where Maoris killed four of his crew. From Golden Bay he sailed up the western coast of the North Island and returned to Batavia. The Dutch were disappointed because Tasman had not found possibilities for trade and had found that the Maoris seemed unfriendly. The company sent no more expeditions.

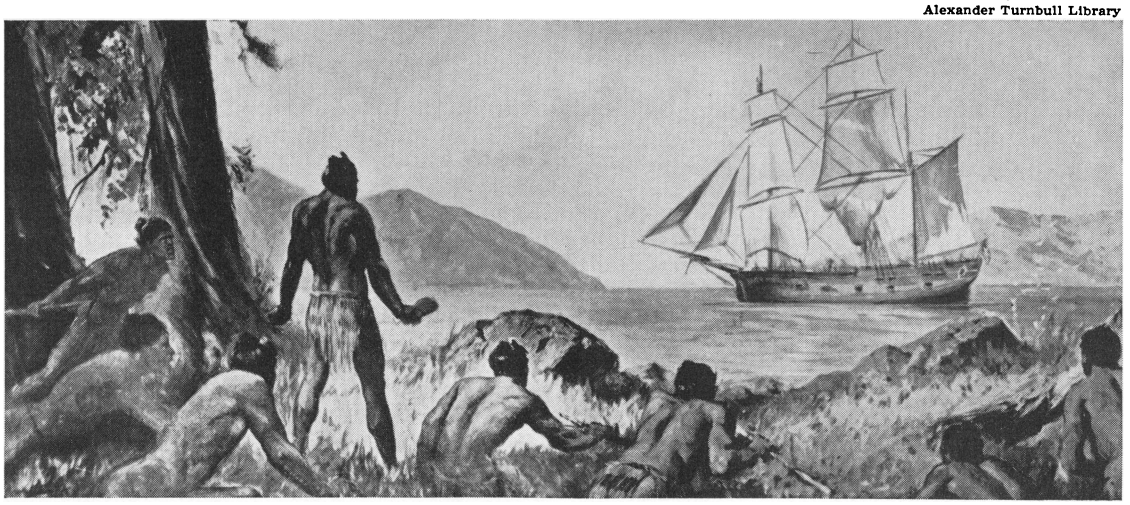
Cook's Voyages. James Cook was the next European to reach New Zealand. The Royal Navy sent Cook to Tahiti on an astronomical expedition. He also had orders to make an exploratory voyage farther south in his ship *Endeavour.* On this voyage, he sighted New Zealand. He landed at Poverty Bay in October, 1769. With the help of a Tahitian interpreter on his ship, Cook eventually established friendly relations with Maoris in the Poverty Bay area. He then spent six months sailing around the North Island and the South Island, charting the coastline. His voyage proved that if there was a great southern continent, New Zealand was not part of it. Cook returned during two later voyages to the Pacific, making a total of five visits to New Zealand. But his first voyage was by far the most important in revealing the nature of the land and the Maoris.

De Surville and the French. Jean-François de Surville was the first French explorer to reach New Zealand. He sailed his ship *Saint Jean Baptiste* into Doubtless Bay, in northern New Zealand, in December, 1769—two months after Cook's visit. Illness among his crew had forced De Surville to anchor in New Zealand waters. He sought help and supplies from the Maoris. After one of the boats from his ship disappeared in a storm, he wrongly thought the Maoris had seized it. His men set fire to a Maori village. Fearing reprisals, he did not stay long in Doubtless Bay and sailed on to Peru. But some of his officers recorded useful information about the Maoris and their customs.

Marion du Fresne, another Frenchman, visited New Zealand in 1772, in command of two ships, the *Mascarin* and the *Marquis de Castries.* After sighting Mount Egmont, he sailed northwards, rounded the North Cape, and turned into the Bay of Islands. Five weeks later, some Maoris attacked and killed him and 26 of his party. In revenge, the French survivors massacred about 300 Maoris.

Jules Dumont d'Urville, a great French explorer, visited New Zealand in 1827 in the warship *Astrolabe,* determined to find out more about the unexplored parts of the coastline. He had visited the country three years earlier in the same ship. But on that visit he was only the second in command. By his thorough investigations, Dumont d'Urville added

The Ship *Endeavour,* commanded by the British explorer James Cook, reached New Zealand in 1769. On this voyage, Cook charted much of the country's coastline.
Alexander Turnbull Library



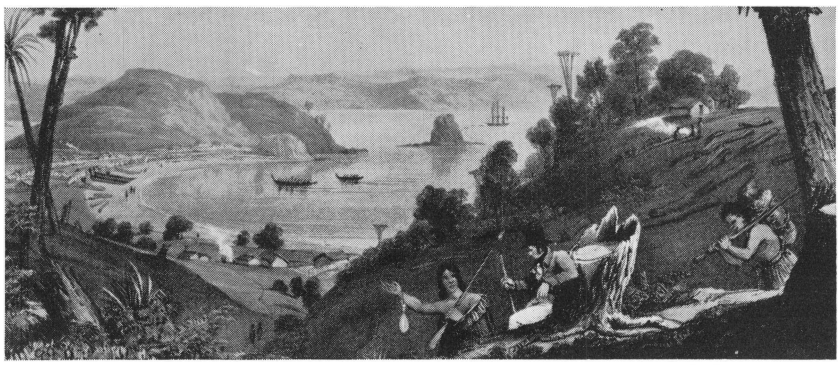
Russell Clark

Samuel Marsden, an Anglican missionary, conducted New Zealand's first Christian church service. He held it at Rangihoua, on the shores of the Bay of Islands, on Christmas Day, 1814.

bay whalers, were honest. But many were brutal men who passed their bad habits on to the Maoris. The whalers and the traders who followed them to New Zealand gave the Maoris a bad example of the white man's behaviour.

Missionaries, such as Samuel Marsden, a chaplain in New South Wales, soon heard tales of the bad habits and dishonesty of the Europeans in New Zealand and of their harsh treatment of the Maoris. Greatly disturbed, Marsden sent a party of Anglican missionaries to New Zealand in 1814. But his missionaries were inadequately trained and their mission made little progress until Henry Williams, a forceful missionary leader, took it over in 1823. The mission was centred chiefly in the Bay of Islands area. Later, Williams established other mission stations on the eastern coast of the North Island. By 1828, a thriving Wesleyan mission had been set up on the shores of Hokianga Harbour, on the western coast of the North Island. The last large party of missionaries to reach New Zealand, a Roman Catholic group led by a Frenchman, Bishop Jean Pompallier, reached Hokianga Harbour in 1838. The missionaries had little influence on the Europeans. Instead, they concentrated their efforts on the Maoris. European settlers criticized later missionaries, such as George Selwyn and Octavius Hadfield, for favouring the Maoris.

Kororareka (now Russell), a town on the shores of the Bay of Islands, became New Zealand's first large settlement. It was a notoriously lawless place, the home of sailors, traders, whalers, Maoris, and convicts who had escaped from New South Wales. A historian wrote of the drunkenness and lawlessness of many of its early settlers: "Their orgies were such as would defile the pages of history." In and around Kororareka, the Maoris traded flax and timber for the guns and other goods offered by the Europeans. The Maoris fought among themselves and against the Europeans. In one battle alone, in 1830, more than a hundred people were killed. The skirmishing in Kororareka spread to other settlements in New Zealand's far north and the missionaries complained to the government of New South Wales about the situation. In 1833, the Governor of New South Wales sent James Busby to the Bay of Islands to be the first British resident. But he had no power to punish law-breakers, and the Maoris ridiculed him.



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Kororareka, on the shores of the Bay of Islands, was the first large settlement in New Zealand. Traders, sealers, and whalers used it. It is now called Russell.

much to the knowledge of the country's geography. Like Cook, Dumont d'Urville was a shrewd and accurate observer of Maori life. He later published an account of his second visit to New Zealand.

Early Settlement (1790-1850)

Sealers and Whalers followed the explorers. From 1792 onwards, sealing gangs set up bases in Foveaux Strait and in sounds on the south-western coast of the South Island. They killed so many seals that the trade declined rapidly after 1810.

During the same period, whalers established bases in the northern part of New Zealand. At first, the whalers hunted sperm whales. But, in the 1830s, they began a new kind of whaling, *bay whaling*. The whalers lived on shore and set out in small boats to hunt right whales as they ventured into shallow waters to calve. Some of the whalers, particularly the

The New Zealand Company. In Britain, Edward Gibbon Wakefield criticized the haphazard way in which New Zealand was being settled. In 1839, he led a group in forming the New Zealand Company for the purpose of sending British settlers to New Zealand on a planned basis. The British government opposed the plan, but the company continued. Wakefield later sent his brother to New Zealand to buy land in the Cook Strait area from the Maoris. In 1840, the company's first settlers reached Wellington in the ships *Aurora* and *Oriental*. The Plymouth Company, a branch of the New Zealand Company, established a settlement at New Plymouth in 1841, and the New Zealand Company established another settlement at Nelson in 1842. None of these settlements developed according to Edward Wakefield's plan. For example, the Maoris disputed many land claims, and much of the land proved unsuitable for settlement. Such obstacles caused many hardships for the settlers. But the pioneer villages of Wellington, New Plymouth, and Nelson constituted the beginning of organized British settlement in New Zealand. See NELSON (city); NEW PLYMOUTH; and WELLINGTON (city) in the other Australasian volume.

The Treaty of Waitangi. Historians once said that the British government made New Zealand a colony in 1840 in order to be able to supervise the activities of the New Zealand Company. But many historians no longer accept this theory. They believe that the government had decided to step in as early as 1839, before the New Zealand Company established its settlements. The British apparently thought that European settlement was likely to continue and that they had to proclaim sovereignty over New Zealand in order to maintain law and order.

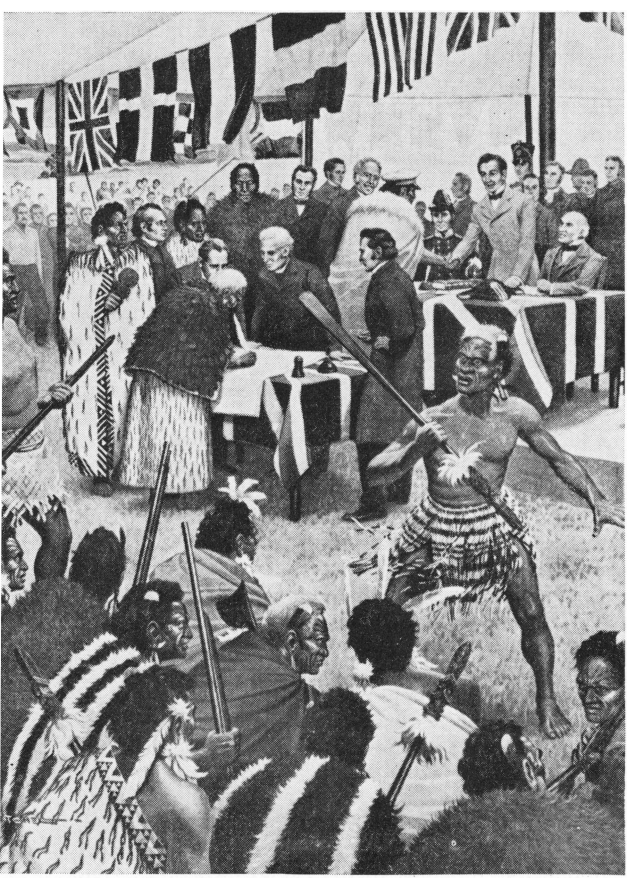
In 1839, the British appointed William Hobson to carry out this task by signing a treaty with the Maoris. His famous document, the Treaty of Waitangi, invited the Maoris to become Queen Victoria's subjects. It promised them full rights as British subjects and guaranteed their property rights. In return, the Maoris had to promise to sell their lands only to the governor, acting for the Crown. Hobson and the Maoris signed the treaty on Feb. 6, 1840, and New Zealand became a dependency of the colony of New South Wales later the same year. In 1841, New Zealand became a separate British colony. The same year, Hobson shifted the capital from Russell to Auckland. The next governor, Robert FitzRoy, relaxed the rule that the Maoris must not sell their lands directly to the settlers. His action led to more and greater land disputes.

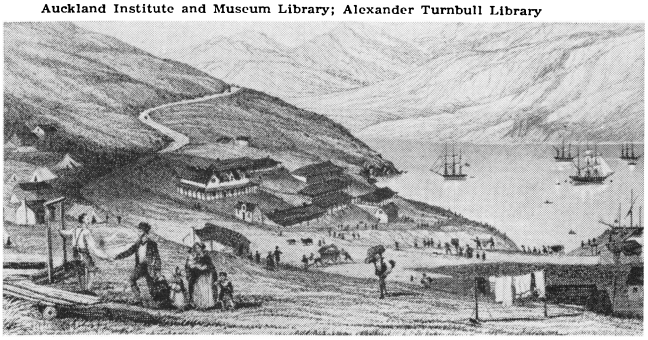
The Treaty of Waitangi was signed in 1840. It led to British rule.

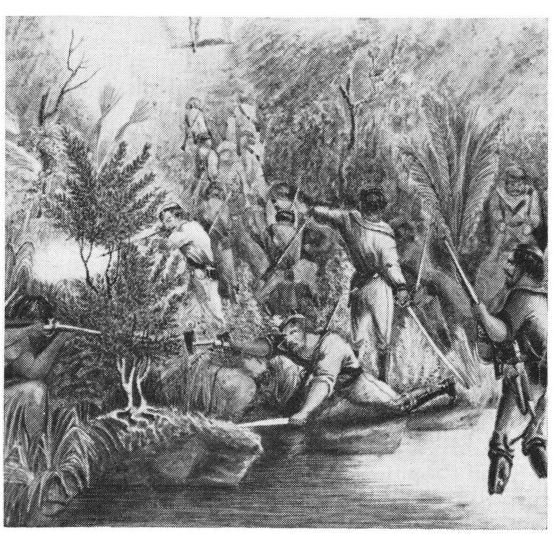
The Maori Wars, *bottom right,* were a bitter period in the country's history.

British Settlers arrived in Canterbury, *below,* in December, 1850.

Auckland Institute and Museum Library; Alexander Turnbull Library







The Otago Association. In the late 1840s, groups in Britain planned to set up settlements in the South Island areas that are now known as Otago and Canterbury. These settlements, although only indirectly attached to the New Zealand Company, were far closer to Wakefield's ideal of orderly and planned colonization than his own earlier settlements had been. A Scot, George Rennie, first thought of the idea of a Scottish settlement, which in time became the Otago Association's settlement at Dunedin. But, at an early stage, he dropped out of the scheme. The leaders of the Otago Association were William Cargill and Thomas Burns, both elders of the Free Church of Scotland. They were determined that the settlement should be purely Scottish and Presbyterian in character. In 1848, the settlers reached Dunedin from Scotland. The town site had already been surveyed, with some land reserved for schools and the Church. See DUNEDIN in this volume; OTAGO (History) in the other Australasian volume.

The Canterbury Association planned a Church of England settlement for the site that is now Christchurch. The association, formed in Britain in 1848, had the Archbishop of Canterbury, bishops, noblemen, and members of parliament on its controlling committee. Wakefield led the move to form the association and provided many of the ideas for the settlement. The association appointed John Robert Godley as leader of the settlers. Its first settlers reached Lyttelton in 1850. They faced many problems after they moved to Christchurch. The settlers were slow to buy land. But, by 1852, the settlement had a population of 3,400. See CANTERBURY (History) and CHRISTCHURCH in this volume.

Some historians have suggested that the importance of Wakefield's colonies has been exaggerated. They point out that, by 1865, the people attracted to New Zealand by Wakefield were far outnumbered by those who went there for gold or for other reasons.

The Maori Wars (1845-1870)

Heke's Revolt. Hobson had hoped that the Treaty of Waitangi would establish good relations between the Maoris and the Europeans, whom they called *pakehas*. But there were soon signs that it had failed in this aim. Hone Heke, nephew of the great chief Hongi, of the Ngapuhi tribe, indicated Maori feelings when he cut down the flagstaff and the Union Jack at Russell in 1844. He repeated this action three times, and on the last occasion, on March 11, 1845, he also plundered and burnt the town. Many historians regard Heke's revolt, also called the *Northern War,* as the first of a chain of battles that became the *Maori Wars*. Heke's revolt was caused chiefly by Maori grievances about dwindling prosperity in the Bay of Islands area after the government moved the capital from Russell to Auckland. Governor FitzRoy could do little to restore order. But, in 1846, a new governor, George Grey, quickly quelled Heke's revolt.

Land Disputes. At first, while the number of pakehas was still small, the Maoris were ready to accept them. The Maoris respected pakeha missionaries and wanted to buy the useful goods pakeha traders offered them. But the number of settlers increased, and the Maoris feared that they would take over more land than most Maoris wished to sell. To meet this threat, Maori tribes in the Waikato district tried to unite under a chief whom they elected as their king. In 1858, they elected Te Wherowhero. He and his followers became known as the *King Movement* and the followers as *Kingite* Maoris. See KING MOVEMENT in this volume.

Maori land rights were not easy for Europeans to understand. Maori tradition did not recognize the European custom of ownership by one man. In effect, each tribe owned its own land, and this land—on which the Maoris hunted or farmed in their own way—was the key to their way of life. But the pakehas did not understand, or refused to understand, the Maori system. This misunderstanding was only part of the problem. The two peoples had completely different ways of life, and could not understand each other in most other situations.

The quarrel that caused the chief revolt occurred at Waitara, in Taranaki, in 1860. One chief, Teira, offered to sell a block of land to the Governor, Thomas Gore Browne. Another chief, Kingi, disputed Teira's right to sell. The Governor decided that Teira did have the right to sell and then tried to survey the land. Fighting broke out in the first of the Taranaki Wars.

In 1861, George Grey was once again appointed governor, this time succeeding Gore Browne. During his first term, Grey had pacified Hone Heke and another chief, Te Rauparaha. He had also guarded against future trouble with the Maoris by insisting that they sell their land only to the Crown, and he had won their affection. For these reasons, the British government hoped that Grey could settle the land disputes. His second term as governor was not a success, but his failure was not wholly his fault. The Maoris now regarded him with suspicion, and his own ministers checked and changed his plans. Many of them wanted a final reckoning with the Maoris so that the colonial government could seize their lands. Grey also had disagreements with the generals commanding the British troops.

Maori Against Pakeha. Fighting in the Maori Wars took place in Taranaki, the Waikato and Bay of Plenty districts, and the Poverty Bay area. In the first Taranaki War, in 1860 and 1861, Kingi's tribe, helped by some Taranaki and Waikato tribes, laid waste the Taranaki countryside. The settlers, hemmed in at New Plymouth, could only look on anxiously. General T. S. Pratt, commander-in-chief of the British forces in Australia, led his troops and a force of settler-militiamen against the Taranaki Maoris. They inflicted minor defeats on the Maoris, and the fighting ended in a truce, not real peace.

Fighting flared up again in Taranaki two years later, in 1863. Maoris ambushed and killed an escort of troops sent by the Governor to take possession of a block of land at Tataraimaka. The Maoris intended to keep the land until they got fair treatment over the Waitara dispute. In the second Taranaki War, from 1863 to 1865, some of the Maori warriors adopted the practices of the cannibalistic Hau Hau

Maori Warriors fought bravely during the Maori Wars. But British soldiers captured many of them.

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movement (see HAU HAU MOVEMENT in this volume).

Fighting also took place in the Bay of Plenty area. British soldiers suffered defeat at Gate Pa, near Tauranga. But soon after this battle they defeated the Maoris at Te Ranga, 2 miles from Gate Pa.

The most severe fighting of the Maori Wars took place in the Waikato district. By 1863, the Kingite Maoris in the area had such strength and confidence that they insisted on being given the right to rule themselves. They established fortifications against the British forces at a point on the south bank of the Mangatawhiri, a tributary of the Waikato River. Grey regarded their demand as rebellion and sent General Sir Duncan Cameron across the stream to reassert government rule. The Kingite Maoris resisted him, fighting bravely and skilfully. The general's force eventually crushed the Maoris. In 1864, under their warlike chief, Rewi Maniapoto, they made a last stand at Orakau Pa. But the British defeated them.

During the wars, New Zealand militiamen assisted the regular British troops. At the time of the Waikato campaign, about 10,000 regular troops and almost as many militiamen were under arms. The militiamen had several able leaders, such as Major Gustavus von Tempsky, a colourful adventurer who was skilled in guerrilla warfare.

The Maoris fought with great courage against hopeless odds. Peace was not officially declared until 1881, 10 years after most of the fighting had ended. Tawhiao, son of the first Maori king, signed for the Maoris. To his people, the end of the wars meant the loss of their lands. The government had confiscated some of their most valuable land during the wars. After the fighting was over, they lost more land in comparatively unprofitable land sales.

Self-Government (1853-1876)

Provincial Government. Until 1853, New Zealand was a Crown colony, ruled by a governor who took his orders from the Colonial Office in Britain. The early settlers, not satisfied with this arrangement, wanted self-government. In 1852, Britain's parliament passed the New Zealand Constitution Act, providing for a New Zealand parliament and a system of provincial government (see GOVERNMENT OF NEW ZEALAND in this volume). In 1853, the Governor set up the provinces of Auckland, New Plymouth, Wellington, Nelson, Canterbury, and Otago. At this time, New Zealand's main settlements were isolated, and could be reached only by using slow and irregular communications. For this reason, the provincial system seemed, at first, to be sound. But weaknesses soon appeared, and provincial government was finally abolished in 1876.

Central Government. The Constitution Act empowered New Zealand to have a central government that would control matters affecting the entire colony. A central parliament, called the *General Assembly,* was set up in 1853. Many historians call the years from 1853 to 1876 the *provincial period* in New Zealand's history. This term emphasizes the bitter struggle between the *provincialists,* who wanted to strengthen the provinces at the expense of the central government, and the *centralists,* who wanted the central government's authority widened.

Ironically, Julius Vogel, who had begun his career as a provincialist, took the actions that led to the disbanding of provincial government. First as treasurer and later as premier, he implemented bold plans to build more roads and railways and to improve communications generally. In this way, he helped to make separate provincial governments unnecessary. The provincial governments refused to give his central government control of land through which the chief railways would run. They also refused to let his government control forests he wanted to protect. In revenge, he decided to abolish the provinces. In 1875, he introduced a bill into the General Assembly ending the provincial system. The provincial governments were disbanded the following year.

The Gold Rush and After (1861-1880)

The Discovery of Gold. A new period of prosperity began in 1861, when Gabriel Read discovered gold in the Tuapeka district of Otago. Almost immediately, a gold fever gripped Otago. Thousands of people flocked to Tuapeka, and part of it became known as *Gabriel's Gully.*

In 1862, two prospectors, Horatio Hartley and Christopher Reilly, reached Dunedin with 87 pounds of gold they had discovered in Central Otago. These discoveries and other fresh strikes were the basis of a

gold rush. In 1864 and 1865, the gold rush extended to the West Coast region of the South Island. In the late 1860s, more gold was mined on the West Coast than in Otago.

The discovery of gold brought prosperity to the southern part of New Zealand. Until 1891, gold was second only to wool as the country's chief export. The South Island grew richer and more populous at a time when the Maori Wars and their effects held back progress in the North Island. Comparatively few gold-miners actually won fortunes. In general, the people who made the greatest profit from the gold rush were the farmers and merchants who sold food and supplies to the miners.

The Rush of Migrants. The gold discoveries changed the population in two ways. They increased the number of people in New Zealand and they changed the type of people who made up its population. In terms of numbers, the population grew from 99,000 in 1861 to 218,000 in 1867. Wakefield's schemes for planned settlement had attracted only about 15,000 people to New Zealand. But the unplanned settlement brought about by the gold rush had attracted more than 100,000 people.

In terms of types, Wakefield had wanted his settlements to have the same classes of people, with the same attitudes, as existed in England. The founders of Dunedin also wanted their settlement free from people and ideas different from their own. But the discovery of gold made such schemes impossible. Many of the immigrants attracted by the gold rush were quite different in outlook from the early settlers of Otago and Canterbury. The gold-miners tended to be rough and straightforward, to believe that one man was as good as another, and to be radical in politics. They believed, for example, that the government had a duty to help the poorer people.

The Vogel Era. At the end of the 1860s, the gold boom collapsed and many of the miners were out of work. Many farmers faced economic difficulties, and even the provincial governments faced mounting debts. In 1870, when the colony seemed on the brink of a depression, the treasurer, Julius Vogel, came forward with his bold public works scheme. Vogel, a daring and imaginative man, proposed to revive New Zealand by borrowing £10 million overseas over a period of 10 years. He proposed to spend this money on building railways and highways, and on assisting immigrants to pay for their passages. His ideas were sound in theory, but they broke down in practice. Under Vogel's scheme, New Zealand borrowed too much money and spent much of it unwisely. New Zealanders became over-confident. They forgot that they were living on borrowed money and that the colony had few reliable exports. When a serious depression developed in the 1880s, payment of interest on overseas loans proved a heavy burden for the young country. But, in the years that followed, the roads and railways built with Vogel's borrowed money were to prove of great value.

Refrigeration. In 1878, the price of wool tumbled. The colony was seriously hurt because three-quarters of the value of its exports came from wool and gold. Hard times came—and they continued for more than 15 years. The 1880s are sometimes called the *hungry eighties,* because so many businessmen went bankrupt and so many workers were unemployed.

At that time, farmers could export only the wool from their sheep, or boil the sheep down to make tallow. People realized that the depression would probably end if farmers could ship fresh meat overseas. Their problem was solved by the development of ships equipped with refrigerated holds.

In 1882, the sailing-ship *Dunedin* took New Zealand's first successful cargo of frozen meat to Britain. This voyage marked the beginning of New Zealand's great frozen-meat industry. By 1890, the export of frozen meat was worth more than £1 million a year. By 1900, New Zealand had also developed an important export trade in butter and cheese. The refrigerated-meat trade meant that small farms could be run profitably and that the land could be settled more closely, particularly in the North Island. Since 1901, the population of the North Island has increased more rapidly than that of the South Island, primarily because of the development of the meat trade.

Social Progress (1890-1914)

The Seddon Era. The Liberal party formed the government in 1891 and stayed in office until 1912. Richard John Seddon, who was premier from 1893 to 1906, was the party's greatest figure and the colony's most popular leader. Seddon was a huge man who at one time weighed 280 pounds. He had once been a gold-miner and, all his life, he retained the roughness of speech and manner that showed his origins. When the first Liberal premier, John Ballance, died in 1893, politicians did not expect that Seddon would succeed him. But, with the backing of the aged Grey, Seddon succeeded Ballance and quickly dominated the Liberal cabinet. Large groups of voters acclaimed him as *King Dick.*

Seddon and his party were lucky to be in office at a time when prices were rising and New Zealand was building up the new farming industries made possible by refrigeration. The Liberals helped to settle poorer people on the land by offering generous loans and by leasing government land to them. In 1892, the Liberals further encouraged farming by setting up a department of agriculture. But Seddon was not responsible for the prosperity of the farmers, or of the colony generally.

Social Experiments. Before the Liberals came to power, many of the colony's leaders believed that the government had no particular responsibility for the conditions under which the people lived and worked. In the hungry eighties, most factory workers had to work long hours for low wages. In its general election campaign of 1890, the Liberal party persuaded the voters that future governments should take a more responsible attitude towards the colony's social conditions. The Liberals proclaimed that the government should actively protect the weaker members of society, such as the aged, the poor, and women and children.

Later, Seddon's Liberal government introduced so many important reforms that New Zealand gained

an international reputation for pioneering many social welfare measures. For example, the Liberals introduced laws that improved working conditions in factories. They also passed the Arbitration Act (1894), under which disagreements between workers and employers had to be settled by arbitration (see ARBITRATION AND CONCILIATION in this volume).

In 1893, the government gave women the right to vote. They had this right in two states of the United States, but nowhere else in the world at the time. In 1898, the Liberals introduced pensions for old people. The Liberals increased the number of government-run secondary schools, in addition to creating government departments to deal with such problems as labour and health.

Dominion Status. In 1852, the British authorized responsible government for New Zealand. Between 1852 and the early 1900s, they progressively transferred more and more responsibilities to the colonial government. For example, during the Maori Wars, they transferred control of Maori affairs to the colony.

Finally, in 1907, the British granted New Zealand full internal self-government by proclaiming the colony a dominion of the British Empire. They retained responsibility for the country's defence and external affairs. In granting dominion status, the British were really only recognizing that New Zealanders had achieved the final stages of internal self-government.

New Zealand's relationships with Britain showed two main trends before World War I. The country depended on Britain for investments in its economy, for trade, and for protection by the Royal Navy. Many people still called Britain "home". But, at the same time, New Zealanders were conscious that their country was becoming a separate nation.

World War I and After (1914–1939)

Territorial Forces. In the late 1800s, the great European nations were building up empires in various parts of the world. New Zealand, too, wished to acquire colonies. In 1901, the British handed over control of the Cook Islands to New Zealand. For many years, politicians such as Vogel and Seddon had urged the British to take over the islands of Samoa. New Zealanders showed anxiety when the Germans took control of Western Samoa.

After becoming a dominion, New Zealand began building up its army. The government introduced compulsory part-time military training, for a limited number of men, in 1909. The men trained in this programme were called *territorial* soldiers. Eleven days after World War I began, a force of about 1,400 territorial troops from New Zealand occupied German Samoa. They were the first Allied forces to occupy German territory.

Wartime Leadership. When the war began, the prime minister, William Massey, pledged New Zealand's support for Britain and its Allies. In 1915, he decided that a coalition government would help to unite the country in its war effort. He formed a government from his own Reform party and the Liberal party, his chief opposition. The Labour party remained in opposition.

By 1916, the volunteer system was not producing enough recruits for the army, and the government introduced conscription. Labour party leaders went to prison in protests against conscription. During the war, New Zealand sent 120,000 men to fight overseas. One out of every eight of these men was killed. The country also assisted Britain's war effort by contributing food and wool. Britain, desperately short of farm produce, bought New Zealand's produce in bulk and at high prices.

Gallipoli. Apart from the occupation force that went to Samoa, the first New Zealand soldiers to go abroad were the 7,000 troops who sailed for Egypt in October, 1914. They formed the Main Body of the First Expeditionary Force. They trained in Egypt

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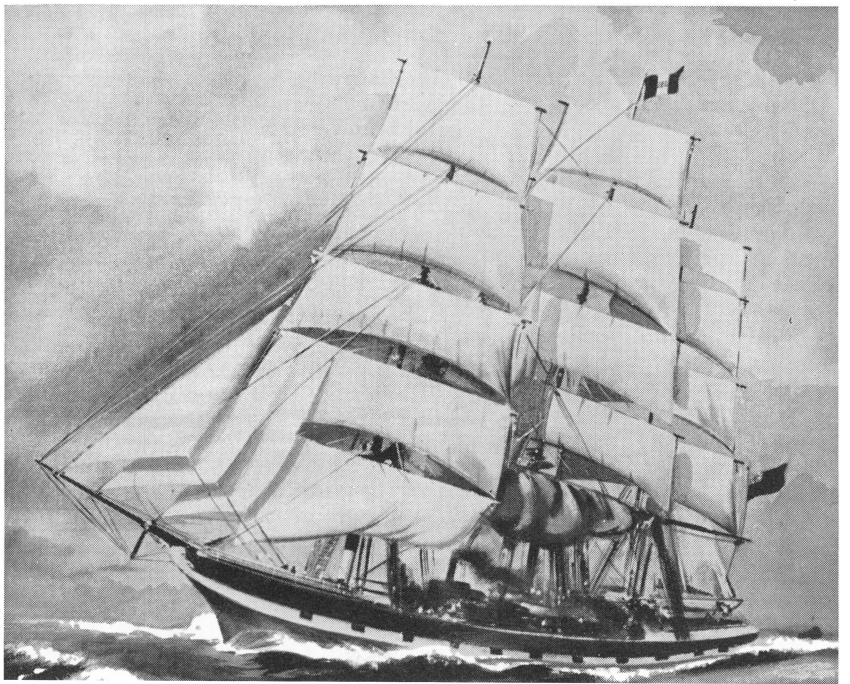
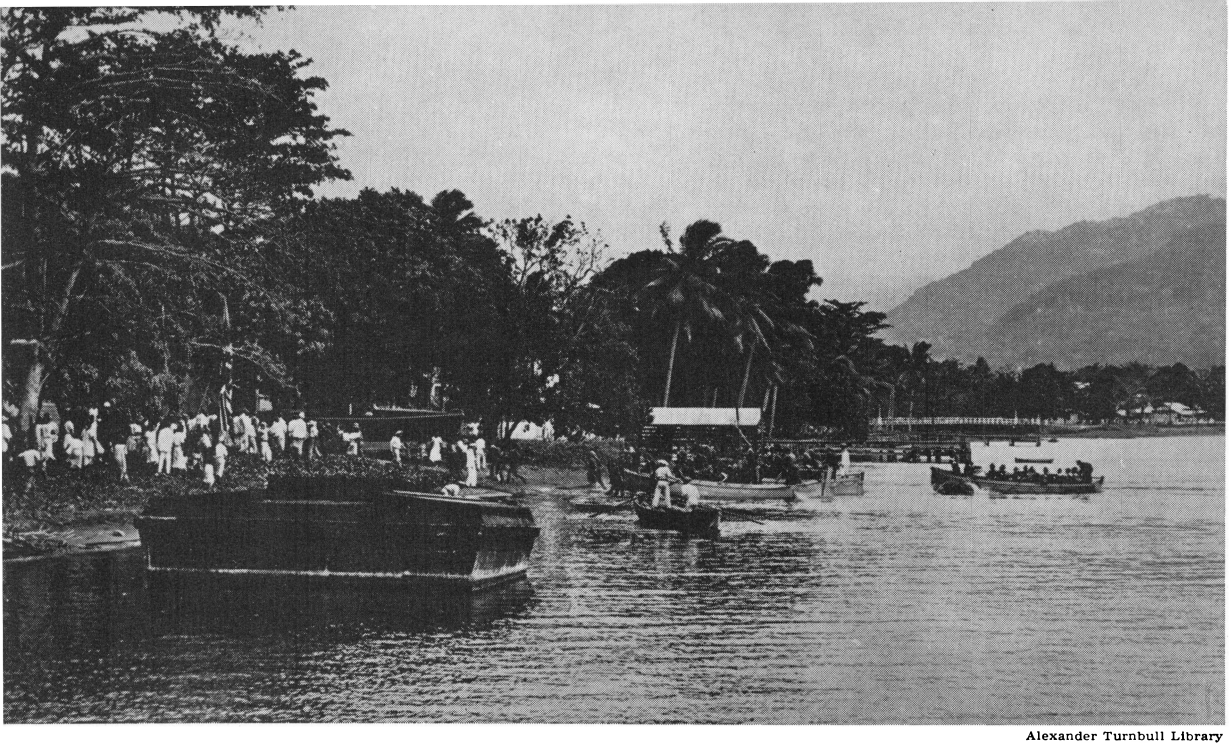


The *Dunedin*, a British sailing-ship, took New Zealand's first successful cargo of frozen meat to Britain. This voyage marked the beginning of New Zealand's great frozen-meat industry.



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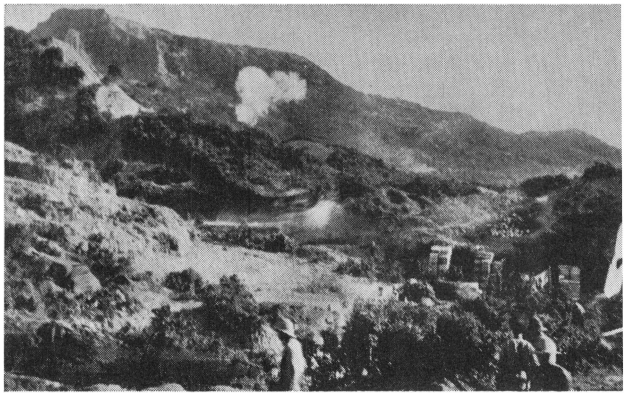
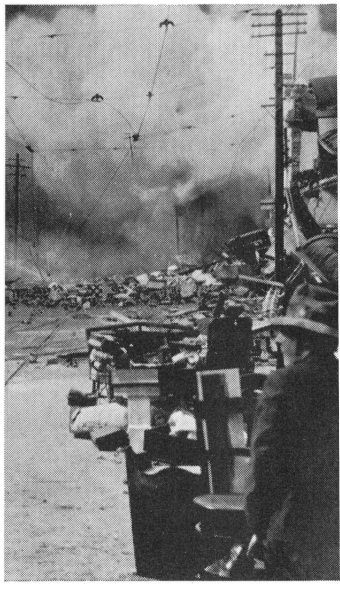
and joined a division from Australia to form the Australian and New Zealand Army Corps (Anzac). On April 25, 1915, the corps was part of an Allied force that landed on the Gallipoli Peninsula. The beach where the Anzac troops went ashore became known as *Anzac Cove*. The Anzacs fought bravely but unsuccessfully against the Turkish forces on Gallipoli. At the end of 1915, all Allied troops withdrew from the peninsula. The campaign failed as a military operation. But the Gallipoli landing drew Australia and New Zealand closer together. A historian has said of it that "no episode gained greater glory for New Zealand arms than the Gallipoli campaign." See GALLIPOLI PENINSULA in the main volumes.

The New Zealand Division was formed in Egypt from veterans of Gallipoli and reinforcements from New Zealand. A small mounted brigade went to Palestine to serve with General Allenby's British forces in the desert war against the Turks. Later, the New Zealand Division fought on the Western Front in France and Belgium. In 1916, the division took part in the Battle of the Somme. In 1917, it fought at Messines and at Passchendaele, one of the most dreadful battles of the war, in which it suffered severe casualties. In 1918, the division was part of the Allied defending force that bore the great weight of the German spring offensive. Later, the division played an important part in the Battle of Bapaume.

The Land Boom. Farming reached a new peak of prosperity during the war. The British needed enormous quantities of farm produce. New Zealand's farmers produced more and more, in spite of a shortage of labour. The government sold all the meat, butter, cheese, and wool that could be exported, and the British paid increasingly high prices for it. People felt great confidence in the future of farming, and a period of prosperity followed. But prices for farm produce declined rapidly in 1920 and



New Zealand Soldiers gained a reputation for great bravery in World War I. They took part in the Gallipoli campaign, *above*, with other Allied soldiers. They also occupied Samoa, *top*.



Earthquakes have been among the greatest disasters in New Zealand's history. In 1931, the Hawkes Bay earthquake wrecked the business areas of Napier and Hastings, killing more than 250 people, and injuring hundreds of others.

1921, and farming became a risky and worrying occupation.

During the war, in 1915, the government decided on a programme of *repatriation* for returned servicemen. It planned to provide them with jobs and with loans for building homes. In fact, settling men on the land turned out to be the most important part of the repatriation programme. The government bought land for its soldier-settlers, usually at high prices, or lent them the money with which to buy their own land. When the government's repatriation department started buying more and more land on behalf of the soldiers, the price of farms—including land of quite low quality—rose greatly. Experts have estimated that during World War I and the farming boom that followed, two-fifths of all New Zealand's farm land changed hands. When overseas prices for farm produce fell, the new farmers faced great hardship. They had bought farms at high prices and had large loans to repay, but their incomes were falling.

The Depression. The first effects of an economic recession hit New Zealand in the mid-1920s. In 1926, people throughout the country began to lose their jobs. That year and the next, prices for the nation's exports of wool fell sharply.

The Reform party stayed in power until 1928. It did little to reduce unemployment, and lost the general election of 1928 to the United party. The new prime minister, Sir Joseph Ward, suggested raising large loans overseas to pay for a programme of public works that would reduce unemployment. But loans were becoming more difficult to get, and he could not raise the money he needed. At the same time, the number of people unemployed rose sharply. By 1929, the country was suffering a severe and deepening economic depression. The money the country earned from its exports fell from £55 million in 1929 to £35 million in 1931. In 1931, the United and Reform parties formed a coalition government to face the crisis. The coalition government introduced many unpopular measures, including *relief work* (low-paid jobs, such as chipping weeds from roads) for unemployed people.

The First Labour Government. By the mid-1930s, the worst effects of the depression had eased. In 1935, during the campaign for a general election, the Labour party strongly criticized the government's handling of the depression crisis. It called for a major social welfare programme. The party's imaginative proposals appealed to the voters. They elected New Zealand's first Labour party government, with a substantial majority in parliament. Michael Joseph Savage became the new prime minister.

The Labour government set about reviving the economy and ridding the country of the effects of the depression. It began a major programme of public works, including new roads and hydro-electric power projects to provide more employment. It raised wages for relief work. It introduced a 40-hour week for workers and strongly encouraged them to join trade unions (see TRADE UNIONS in the other Australasian volume). It offered to pay a set price for all dairy produce to be exported, in an attempt to secure a steady income for dairy farmers.

Nationalization and Social Welfare. Between 1935 and 1939, the Labour government *nationalized* (took state control of) several important institutions. It imposed stricter controls on credit and the issue of money by setting up a government-controlled Reserve Bank. The government nationalized Union Airways Ltd., the chief airline, in addition to most of the country's network of broadcasting stations. It also set up a special department to build houses for renting at low cost to families who could not afford to buy a house or to pay high rents. Throughout the country, the government-run State Advances Corporation built thousands of houses and made them available at low rents.

In 1938, New Zealand began a new era of social welfare when the government introduced social security, its extensive programme of social services (see SOCIAL SERVICES in the other Australasian volume).

World War II (1939–1945)

Mobilization for War. After World War I, many New Zealanders came to believe that the League of Nations could prevent future wars (see LEAGUE OF NATIONS in the main volumes). The Labour party was one of the chief groups that held this belief. But,

Historical Publications Branch, New Zealand Internal Affairs Dept.

Maori Soldiers were among New Zealanders who fought alongside the Allies in the Battle of Alamein in northern Africa during World War II.

in the late 1930s, after the Italians had attacked Ethiopia, the Japanese had attacked China, and the Germans had entered Austria, New Zealanders lost faith in the League. The people and the Labour government soon realized that they must support Britain in the conflicts developing in Europe. In 1939, when New Zealand entered the war against Germany, the prime minister, Savage, reflected the attitude of most people when he declared: "Where Britain goes, we go! Where she stands, we stand!"

The country quickly geared itself for war. The government conscripted men into the armed services and imposed rationing on food, clothing, and petrol. Under emergency laws, people could be *manpowered* (directed to work in essential wartime industries), and could be punished for breaking various wartime regulations.

The War Against Germany. In 1940, the first units of the Second New Zealand Expeditionary Force (NZEF) sailed to Egypt under the command of Major-General Bernard Freyberg, a highly skilled soldier who had won many decorations for bravery in World War I. In 1941, the Second NZEF was sent from Egypt to Greece as part of a British, Australian, and New Zealand force assembled to resist advancing German troops. After battling against great odds and sustaining heavy losses, the Second NZEF was evacuated. Most of its members were sent to Crete, only to be evacuated to northern Africa after fierce fighting against German paratroops. In 1941 and 1942, the Second NZEF was strengthened with more men. It took part in the campaign in northern Africa as part of Britain's Eighth Army and distinguished itself at the Battle of Alamein. From 1943 until the end of the war, the Second NZEF fought in Italy. Many of its units, especially the Maori Battalion, established a reputation for bravery.

During the war, the Royal New Zealand Navy operated under the Royal Navy's control. The New Zealand cruiser *Achilles,* together with the British cruisers *Ajax* and *Exeter,* out-fought and trapped the German pocket battleship *Graf Spee* in the Battle of the River Plate. Many New Zealand airmen served in the Royal Air Force, mainly as aircrew.

The War Against Japan. New Zealanders felt great anxiety over Japan's entry into the war. As Japanese forces advanced southwards across the Pacific, the government prepared for a possible attack by building up its home defence forces. By 1942, 107,000 men and women were serving full-time in the home defence forces. The same year, 17,000 United States marines landed in New Zealand. The number of United States servicemen in the country reached a peak of more than 48,000 in July, 1943, and then fell as the battlefronts moved farther north towards Japan. Airmen in the Royal New Zealand Air Force served mainly in the Pacific theatre. In 1942, the New Zealand Army established the Third Division for service in the Pacific. This division fought in the Solomon Islands for several months in 1943 and 1944. But General Freyberg needed more troops in 1944 for the New Zealand divisions in Italy. The Third Division was disbanded and many of its soldiers were sent to Italy. See WORLD WAR II in the main volumes.

New Zealand in the Modern World (1945-)

The Need to Populate. In the years that followed World War II, the government realized that New Zealand needed many more people in order to develop at a satisfactory rate. In 1947, the government introduced a programme to assist emigrants from Britain, paying part or all of their fare to New Zealand. Later, the scheme was extended to include war refugees and unmarried men and women from such European countries as Austria, The Netherlands, and Switzerland. By 1961, more than 11 out of every 100 people in New Zealand were immigrants from Commonwealth countries and more than 2 out of every 100 were immigrants from countries outside the Commonwealth.

The Need for Security. New Zealand was drawn into the Cold War between the world powers after World War II. The country sought to strengthen its armed services. In 1949, the government introduced a scheme of compulsory military training. This scheme was ended in 1958, when the government decided to build up a small but highly skilled permanent defence force. In the 1950s, New Zealand joined defence pacts including ANZUS and SEATO (see INTERNATIONAL CO-OPERATION in this volume). New Zealand soldiers of the K force, formed in 1950, arrived in Korea in January 1951 to assist other United Nations forces fighting there. In 1965, an artillery battery of the New Zealand Army joined American, Australian, and South Vietnamese forces fighting in the war in Vietnam.

Expanding Industries. After World War II, factory production continued to expand. The country still had only a few heavy industries. In the early 1950s, the government and a group of New Zealand and overseas firms established a pulp and paper industry in the North Island. Other major industries were set up in the 1960s, including an oil refining plant near Whangarei, and an iron and steel industry at Waiuku, south of Auckland.

Expanding Trade. In the years after World War II, the country's trade expanded greatly. In the 1950s, it began exporting new items, such as deep-frozen vegetables and fruits, and many varieties of tinned food. In earlier years, more than four-fifths of the country's export trade had been with Britain. But, in 1963, the government began sending trade missions to many countries, especially the countries of Asia. New Zealand developed a fast-growing trade with several Asian countries, especially Japan, Malaysia, and Singapore. Late in 1963, the government created the new cabinet post of *minister for overseas trade.* By 1965, the country's export trade with Britain had dropped from four-fifths of the total to less than half. This change reflected the country's success in finding other markets. In 1965, New Zealand signed a free-trade treaty with Australia.

A slump in world prices for wool hit the country hard in the mid-1960s. When Britain devalued the pound in 1967, the New Zealand government lowered the rate for its dollar by 19·45 per cent., giving it the same value as the Australian dollar.

Expanding Horizons. In overseas affairs, New Zealand helped to represent the viewpoint of the small nations. In 1962, the government granted independence to Western Samoa, which it had governed as a United Nations Trust Territory. In 1965, New Zealand granted full internal self-government to the Cook Islands.

In the field of exploration, the country's mountaineers became known in the 1950s as some of the most skilled in the world. In 1953, the New Zealander Edmund Hillary and the Sherpa Tensing Norgay became the first climbers to reach the top of Mt. Everest. Another New Zealander, George Lowe, was also a member of this expedition.

In sport, the country's athletes gained an international reputation. At the Olympic Games in Rome in 1960, New Zealand won two gold medals within an hour, when Peter Snell won the 1,500 metres and Murray Halberg won the 5,000 metres. See HALBERG, MURRAY, in this volume; SNELL, PETER, in the other Australasian volume.

In the arts, the country developed greatly in the years after World War II. In the 1960s, the government established an arts council to encourage and subsidize the arts in New Zealand.

Aids to Learning

Related Articles. See the list of related articles with the following articles in the Australasian volumes of WORLD BOOK: ARTS OF NEW ZEALAND; LITERATURE OF NEW ZEALAND; MAORIS; MUSIC IN NEW ZEALAND; POLITICAL PARTIES OF NEW ZEALAND. See the *History* section in each of the province articles in the Australasian volumes. See also the following articles:

MAIN VOLUMES

Hillary, Sir Edmund Percival
Rutherford, Ernest

AUSTRALASIAN VOLUMES

BIOGRAPHIES

Bledisloe, Viscount
Brunner, Thomas
Brydone, Thomas
Busby, James
Cargill, William Walter
Colenso, William
Cook, James
Du Fresne, Marion
Dumont d'Urville, Jules
Freyberg, Bernard
Godley, John Robert
Grey, Sir George
Hobson, William
Hochstetter, Ferdinand von
Holyoake, Sir Keith Jacka
Hone Heke
Hongi Hika
Kendall, Thomas
King, Sir Truby
Mair, Gilbert
Mantell, Walter Baldock Durant
Marsden, Samuel
Marshall, John
Martin, Sir William
Massey, William F.
Monro, Sir David
Plunket, Lord
Pompallier, Jean Baptiste François
Ranfurly, Earl of
Read, Gabriel
Richmond, James Crowe
Seddon, Richard John
Selwyn, George Augustus
Smith, Stephenson Percy
Tasman, Abel Janszoon
Te Heu Heu
Te Kooti
Te Rauparaha
Te Wherowhero
Te Whiti
Tyndall, Sir Arthur
Vogel, Sir Julius
Von Tempsky, Gustavus F.
Wakefield, Edward Gibbon
Williams (family)

HISTORY

Armed Services of New Zealand
Endeavour
Government of New Zealand
Immigration and Emigration
Maori Wars
Maoris
Morioris
New Zealand Company
Political Parties of New Zealand
Sealers and Whalers
Wairau Tragedy
Waitangi, Treaty of

UNCLASSIFIED

All Blacks
Anzac
Education in New Zealand
Gold-Mining
Karitane System
Trade of New Zealand

Outline of this article is as follows:

I. **The Maori Voyagers (950-1350)**
   A. Kupe
   B. Toi
   C. The Canoe Fleet
II. **The Explorers (1642-1827)**
   A. Tasman and the Dutch
   B. Cook's Voyages
   C. De Surville and the French
III. **Early Settlement (1790-1850)**
   A. Sealers and Whalers
   B. Missionaries
   C. Kororareka
   D. The New Zealand Company
   E. The Treaty of Waitangi
   F. The Otago Association
   G. The Canterbury Association
IV. **The Maori Wars (1845-1870)**
   A. Heke's Revolt
   B. Land Disputes
   C. Maori Against Pakeha
V. **Self-Government (1853-1876)**
   A. Provincial Government
   B. Central Government
VI. **The Gold Rush and After (1861-1880)**
   A. The Discovery of Gold
   B. The Rush of Migrants
   C. The Vogel Era
   D. Refrigeration
VII. **Social Progress (1890-1914)**
   A. The Seddon Era
   B. Social Experiments
   C. Dominion Status
VIII. **World War I and After (1914-1939)**
   A. Territorial Forces
   B. Wartime Leadership
   C. Gallipoli
   D. The New Zealand Division
   E. The Land Boom
   F. The Depression
   G. The First Labour Government
   H. Nationalization and Social Welfare
IX. **World War II (1939-1945)**
   A. Mobilization for War
   B. The War Against Germany
   C. The War Against Japan
X. **New Zealand in the Modern World (1945-)**
   A. The Need to Populate
   B. The Need for Security
   C. Expanding Industries
   D. Expanding Trade
   E. Expanding Horizons

Books to Read about this topic include:

Beaglehole, J. C. *The Discovery of New Zealand.* Oxford University Press, 1961.

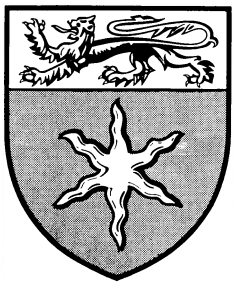
Condliffe, J. B. *New Zealand in the Making.* Allen and Unwin, 1959.

Reed, Alexander Wyclif. *New Zealand: The First Hundred Years.* Reed, 1972. *New Zealand: The Second Hundred Years.* Reed, 1972.

Sinclair, Keith. *A History of New Zealand.* Penguin, 1972. *The Origins of the Maori Wars.* New Zealand University Press, 1957.

HOAD, LEW (1934-), an Australian tennis player, won the Wimbledon men's singles title in 1956 and 1957. In 1956, he also won the Australian and French singles titles. He and Ken Rosewall won the Davis Cup for Australia in 1953, 1955, and 1956. Hoad turned professional in 1957. He was born in Sydney, and named LEWIS ALAN HOAD.

Hobart



Don Stephens

The Natural Setting of Hobart, on the River Derwent with Mount Wellington in the background, makes it one of Australia's most beautiful cities.

HOBART (pop. 129,808) is the capital of Tasmania. It is the second oldest city in Australia, and an important port. The city has an area of about 78 square kilometres (30 square miles). The population of the central city area is 52,425.

Glenorchy, one of Hobart's suburbs, was raised to city status in 1964. It has a population of 42,620 and an area of 114 square kilometres (44 square miles). The rapidly developing municipality of Clarence, on the eastern shore of the River Derwent, has a population of 37,013 and an area of 285 square kilometres (110 square miles).

Hobart has radio and television stations operated by the Australian Broadcasting Commission. It also has two commercial radio stations and a television station operated by private companies. The city has one daily newspaper, *The Mercury*.

Location, Size, and Description. Hobart is situated on the south-eastern coast of Tasmania. It lies on a wide estuary of the River Derwent. Hobart is 735 kilometres (457 miles) by sea from Melbourne. Mount Wellington (1,270 metres or 4,166 feet above sea level) rises behind Hobart.

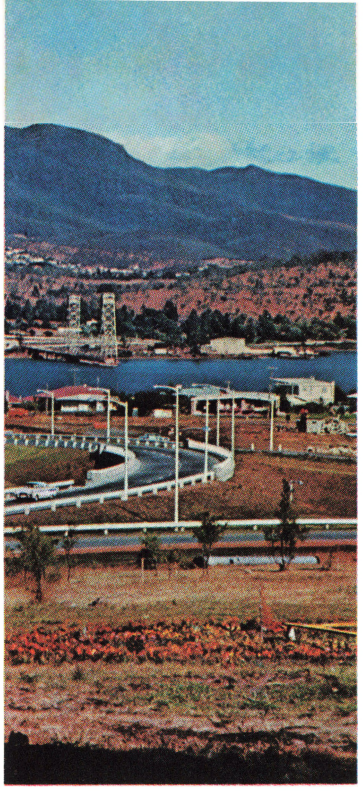
Cultural Life. Hobart's oldest schools include the Hutchins School, founded in 1846 by members of the Church of England, and the Friends' School, founded by Quakers in 1887. St. Virgil's College, a Roman Catholic foundation, was established in 1911. The oldest girls' school, the Collegiate School, was founded in 1892. The University of Tasmania was founded in Hobart in 1890. The university has more than 2,000 students.

Libraries in Hobart include the Tasmania State Library. As well as having the usual facilities of a large library, the State Library operates *bookmobiles* (travelling libraries) that provide library services for many parts of Tasmania. The university also has an important library. The Royal Society of Tasmania, the oldest Royal Society outside Britain, has a fine collection of books and other publications on science and history.

Many amateur theatrical groups present plays in Hobart. The Hobart Repertory Theatre Society has its own small theatre, and conducts classes, seminars, drama groups, and play readings. The society produces about six major plays a year. The Theatre Royal is of great architectural interest. Its foundation stone was laid in 1834, and the theatre has been in continuous use longer than any other theatre in Australia. The Theatre Royal is the home of the National Theatre and Fine Arts Society. It is also used by the Elizabethan Theatre Trust (see ELIZABETHAN THEATRE TRUST in this volume).

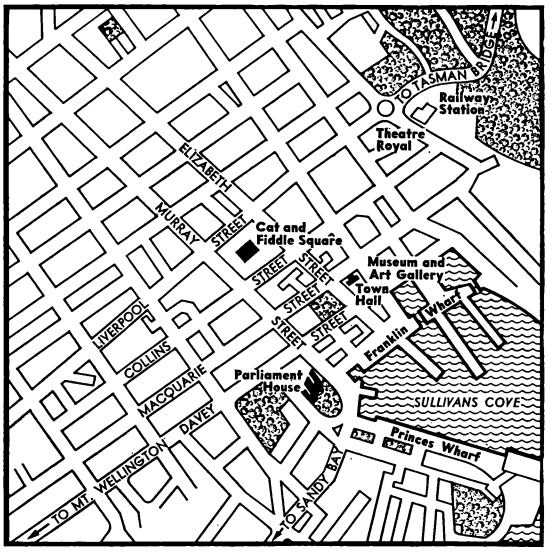
Recreation. Visitors and the people of Hobart can choose among a wide variety of sports and pastimes. Many people take part in sailing, rowing, or fishing, or swim from the sandy beaches near the city. People who like walking can make trips into the bush, and naturalists find much of interest around Hobart.

One of the most popular drives from the city is to the summit of Mount Wellington, which can be reached by car or tourist bus in about half an hour from the city centre. From the summit, there is a magnificent panoramic view over the eastern, south-



Douglass Baglin

The Port of Hobart, with its deep estuary, handles vessels ranging from small crayfishing boats to large ships that carry fruit and other cargo.



ern, and western areas, and a glorious closer view of the city and the River Derwent. From June to October, the summit of the mountain is often covered with snow.

Industry and Trade. The harbour is busy during the fruit export season, from February to May. It has 6 wharves with 13 berths. Even the biggest ships have no difficulty in negotiating the deep waters of the estuary. The total amount of cargo, inwards and outwards, handled by the Marine Board of Hobart averages 1·3 million tonnes (1·3 million tons) annually. Most ships using the harbour carry cargo. The passenger trade has declined considerably since the 1930s, largely because of the development of air travel.

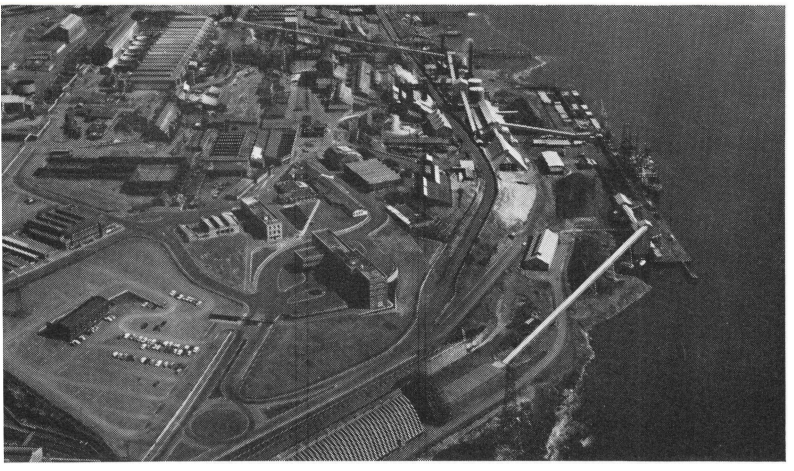
Zinc production is one of the biggest industries in Tasmania. The ore is mined on the western coast, and the final processing is done at the Hobart works of the Electrolytic Zinc Company. Other important industries in Hobart include growing and processing fruit, producing meat and hides, making chocolate, and manufacturing newsprint, carbide, and textiles.

Transport. Hobart's main roads and highways were improved greatly during the 1960s, and the number of motor vehicles in use has increased. In 1965, a new bridge over the River Derwent was opened, linking the eastern and western shores. The bridge aided the development of new suburbs. The main highways in the Hobart region run from north to south. The Tasman highway connects east coast areas with Hobart via the Tasman Bridge. The city's train services operate at a loss.

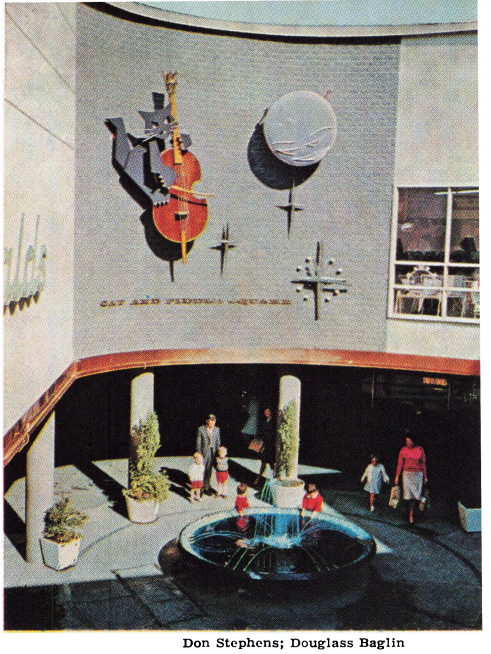
Public Services. Hobart City Council controls the city's water services. Hobart has 14 reservoirs. The council is responsible for the whole system of water supply within the city boundaries.

Electricity throughout the state is produced and supplied by the Hydro-Electric Commission, which is a government-owned body. Gas supplies are provided by a privately owned gas company.

Government. Hobart is governed by an elected city council, consisting of 12 aldermen in addition to the lord mayor and deputy lord mayor. All members of the council are elected by the ratepayers. Alder-



Industries include the zinc works at Risdon, which refines ore from Tasmania's west coast.



Tourist Attractions include the Cat and Fiddle Square, which lies in the centre of Hobart.

Don Stephens; Douglass Baglin

men are elected for four-year terms, and the lord mayor and his deputy for two-year terms.

The affairs of the new city of Glenorchy, which is included in the area known as *Greater Hobart,* are administered by a council consisting of an elected mayor and councillors. A commission governs Clarence, on the eastern shore of the River Derwent.

History. The Tasmanian Aborigines, a people distinct from the Aborigines of the Australian mainland, are now extinct. The last Tasmanian Aborigine died in 1876. The origin of these Aborigines is unknown, but experts believe that they reached Tasmania from islands to the north of Australia. They arrived in Tasmania at least 5,000 years ago.

Abel Tasman made the first recorded sighting of Tasmania in 1642, and noted that people lived on the island. Later, the explorers Marion du Fresne, Tobias Furneaux, James Cook, William Bligh, Bruni d'Entrecasteaux, and Nicolas Baudin made contact with the Tasmanian Aborigines. When white settlement began, a few thousand Tasmanian Aborigines lived on the island.

Some Aboriginal groups lived in the area that is now Hobart. Archaeologists have discovered evidence of Aboriginal camping grounds on both sides of the harbour, particularly towards the harbour entrance.

An Anglican chaplain, Robert Knopwood, was among the prominent members of the first white community to settle in Hobart. He was a man of colourful character, and left several diaries that still exist. In these diaries, he relates that, when he was travelling on his white horse, he often came on small groups of Tasmanian Aborigines camped on the shores or in secluded inland places.

Bruni d'Entrecasteaux, a French admiral who visited Tasmania in 1792 with the ships *Recherche* and *Esperance,* sailed up the Derwent. It is quite possible that he was the first European to land in the area that is now Hobart. Sir John Hayes, with two English ships, *Duke of Clarence* and *Duchess,* arrived about two months after D'Entrecasteaux left, and re-explored the Derwent. He charted the coastline as far north as Risdon, which he named in honour of his second officer on the *Duke of Clarence,* William Bellamy Risdon. Risdon was the site of the first white settlement, made in 1803. Later, mainly because of water shortage at Risdon, the settlement was transferred. On Feb. 20, 1804, settlers landed in Sullivan's Cove, and Hobart came into being. Two small ships carried the first settlers. They named the city in honour of Lord Hobart, the secretary of state for the colonies in the British government of that time. At first, the name Hobart Town (sometimes Hobarton) was used, but in 1881, the city formally adopted the name Hobart. The development of Tasmania centred on Hobart. In Australia, Hobart was second only to Sydney as a capital city. Melbourne did not come into being until 1835, when it was founded by settlers from Tasmania.

Many prominent people were born in Hobart. They include Mrs. Humphrey Ward (born Mary Augusta Arnold), the Victorian novelist; Lyndhurst Giblin, a prominent economist in Australia who was for a time commonwealth statistician and also professor of economics at the University of Melbourne; Andrew Inglis Clark, a judge who had a great deal to do with framing the federal constitution; Phillip Bowden, a prominent physicist; Joe Darling, who was a test cricketer and a member of the Tasmanian Legislative Council; and Sir Leonard Huxley, who became vice-chancellor of the Australian National University at Canberra.

Sir John Gillibrand was born at Ouse, near Hobart, but was educated in the city. Viscount Montgomery arrived in Hobart at about the age of six and went to school in the city. His father was a bishop of Tasmania.

Related Articles in the Australasian volumes of WORLD BOOK include:

D'Entrecasteaux, Bruni
Derwent
Giblin, Lyndhurst Falkiner
History of Australia
Hobart, Lord
Mount Wellington
Tasmania
Tasmanian Aborigines
Zinc Mining

HOBART was an Australian light cruiser. It was the only Australian cruiser to survive World War II. In 1939 and 1940, it saw service in the Mediterranean. It later took part in battles in the Pacific, such as the Battle of the Coral Sea. In July, 1943, it was torpedoed off the New Hebrides, but was repaired. From May to July, 1945, *Hobart* supported Australian and American troops invading Borneo. The ship was originally commissioned as H.M.S. *Apollo* in 1936. It was transferred to the Australian navy in 1938, and decommissioned in 1960.

HOBART, LORD (1760-1816), ROBERT HOBART-HAMPDEN, a British politician and statesman, was secretary for war and for the colonies in the British government from 1801 to 1804. He virtually directed the policies of the government towards Britain's overseas colonies, and made many decisions concerning the administration of the New South Wales colony. David Collins, a British army officer, when he selected the site for a town in Tasmania in February, 1804, named it after Lord Hobart (see COLLINS, DAVID, in this volume). In 1793, Lord Hobart was appointed governor of Madras, in India. He later became the fourth Earl of Buckinghamshire.

HOBSON, WILLIAM (1793-1842), was the first governor of New Zealand. He held the position from 1841, when New Zealand was declared a separate colony, until his death. He had been lieutenant-governor of the settlement since 1840. He was a humane administrator, treating both Maoris and colonists with the same justice. Historians remember him for helping to draft the Treaty of Waitangi, and regularizing land sales in the colony (see WAITANGI, TREATY OF, in the other Australasian volume).

Turnbull Library

William Hobson

Hobson was born at Waterford, in Ireland. He entered the navy in 1803, under 10 years of age. He became a midshipman in 1806, and a commander in 1824. In 1836, he arrived in Hobart, as captain of H.M.S. *Rattlesnake*. In September of that year, he conveyed the first government officials to the new colony at Port Phillip (later Melbourne). For the next three months, he surveyed Port Phillip Bay. In 1839, Governor Sir Richard Bourke received word that some form of law and order was necessary in the settlement at New Zealand. Bourke sent Hobson to the islands. The British government appointed him lieutenant-governor. See BOURKE, SIR RICHARD, in this volume.

See also HISTORY OF NEW ZEALAND (The Treaty of Waitangi) in this volume.

HOCHSTETTER, FERDINAND VON (1829-1884), a German geologist, carried out the first major geological survey of New Zealand. His most important investigations were into the geology of the Auckland and Nelson provinces, especially the volcanic activity in Auckland province and the geology of the hot springs area around Rotorua.

HOCKEY is a popular sport in Australasia. For the rules and a description of how to play the game, see FIELD HOCKEY in the main volumes.

In Australia, a state hockey association controls the game in each state. These associations belong to the national Australian Hockey Association, which has a membership of more than 30,000 men players, or the All-Australian Women's Hockey Association, which has a membership of about 30,000 women.

Hockey was first played in South Australia in 1904. It grew steadily in popularity, but reached international standards only after World War II. Today, hundreds of clubs in New South Wales alone compete in competitions on winter weekends. State teams compete in the Australian Hockey Championships, held by the federal associations each year. Australia also sends teams to the Olympic Games. It gained third place in hockey at the Tokyo Olympic Games, in 1964. Australia and New Zealand compete for the Manning Memorial Cup every two years. Australian women have been competing in international hockey since 1914, when a British team toured Australia. The first women's team to play overseas competed in South Africa, in 1930.

In Indonesia, hockey is not one of the foremost sports, but it has a fairly widespread following of players who compete in club and national championships. Indonesian hockey teams usually compete against touring teams from neighbouring countries.

In Singapore and Malaysia, hockey is one of the major team games. Each state of Malaysia, except Perlis, has its own controlling body. These state bodies are affiliated to the central Malaysian Hockey Association. The Singapore Hockey Association controls the game in Singapore. Inter-club competition is keen throughout the two countries.

British soldiers introduced the game into Malaya. In 1902, the Royal Engineers played a match at Singapore. Hockey soon spread to the Selangor and Ipoh clubs. Interstate matches began in 1924. The Malayan Hockey Association came into being in 1954. Since 1963, the state teams have competed for the Tun Razak Cup each year. Malaysia also sends hockey teams to compete in the Olympic Games. It won third place in the Asian games at Jakarta in 1962.

In New Zealand, hockey probably rates in popularity after rugby football and soccer as a winter sport. More than 14,000 men belong to the 25 associations connected with the New Zealand Hockey Association. The New Zealand Women's Hockey Association controls the game for about 12,000 women. The major competitions are for the Challenge Shield (for men), and the Izard and K cups (for women).

Hockey was first played at Christchurch in 1896, and soon became popular. New Zealand teams finished 6th in the Olympic Games in 1956, and 5th in 1960. New Zealand women competed in four world championships during the early 1960s. They finished among the first three in each championship. In international competitions overseas, the women's teams have played more than 90 matches and suffered only 13 defeats.

HODDLE, ROBERT (1794-1881), was a pioneer surveyor in Australia. He is remembered mainly for his design of Melbourne, completed in 1837. He planned the city in a grid-iron pattern, with the main streets 99 feet wide. Sir Ralph Darling, the governor, appointed him assistant surveyor in 1826. In 1851, he became the first surveyor-general of the new colony of Victoria. Hoddle surveyed many areas for settlement, including Campbelltown, Berrima, and Goulburn. He worked with the explorer John Oxley in mapping and surveying the shores of Moreton Bay. He also surveyed the upper Shoalhaven River area. He was born in London.

HOGAN, HECTOR (1932-1960), was an Australian sprinter. In Sydney in March, 1954, he equalled the world record of 9·3 seconds for 100 yards. In 1956, he came third in the final of the 100 metres at the Olympic Games in Melbourne. Between 1952 and 1958, he won the Australian 100 yards championship for seven successive years. Hogan was born at North Rockhampton, in Queensland. His full name was HECTOR DENNIS HOGAN. He developed leukaemia, and retired from athletics in 1959.

HOLDEN, SIR EDWARD (1885-1947), an Australian motor-car manufacturer, was a member of the family after whom the first mass-produced Australian motor car was named. EDWARD WHEEWALL HOLDEN was born in Adelaide. With his father, Henry Holden, Edward established a business for constructing motor-car bodies in 1917. In 1930, General Motors merged with the South Australian body-building firm to form General Motors-Holden's. The first Holden motor car came off the assembly line in 1948.

HOLEY DOLLAR was a Spanish dollar with a *dump* (a small piece of silver) removed from its centre. Spanish dollars had been worth five shillings, but became scarce. The government issued holey dollars at five shillings and dumps at one shilling and three pence. The coins circulated from 1814 to the 1830s.

HOLLAND, SIR SIDNEY (1893-1961), was prime minister of New Zealand from 1949 to 1957. He was an able politician, debater, and public speaker. In 1951, Holland and his government faced a trial of strength over a waterside workers' strike in all parts of the country that lasted five months. After the government settled the strike, Holland and his party won an election on the issue of the measures they had taken against the strike. SIDNEY GEORGE HOLLAND was born at Greendale, Canterbury, in the South Island. He was elected to parliament in 1935 and became leader of the National party in 1940.

HOLMAN, W. A. (1871-1934), a brilliant Australian politician, was premier of New South Wales from 1913 to 1920. As premier, he established state control over many industries. He resigned from the Labor party in 1916, because he supported conscription, but remained a popular premier. His full name was WILLIAM ARTHUR HOLMAN. He was born in London. He entered the state parliament in 1898 and became deputy leader of the New South Wales Labor party in 1905.

HOLT, HAROLD (1908-1967), was prime minister of Australia for less than two years. He succeeded Sir Robert Menzies on Jan. 25, 1966, and continued the coalition government of Liberal and Country parties. But he disappeared while swimming off the Mornington Peninsula in December, 1967.

Holt was treasurer from 1958 to 1966. He held many important economic positions for Australia, including membership on the board of governors of the International Bank for Reconstruction and Development, the International Monetary Fund, and the International Finance Corporation.

Holt was born in Sydney, and educated at Wesley College, in Melbourne. In 1935, he was elected to the House of Representatives. During World War II, he helped to establish the Department of Labour and National Service. From 1949, he was minister for immigration. He was appointed a privy councillor in 1953, and became leader of the House of Representatives in 1956.

Australian News
Harold Holt

High Commissioner for New Zealand
Sir Keith Holyoake

HOLYOAKE, SIR KEITH JACKA (1904-), was prime minister of New Zealand for a short period in 1957 and again from 1960 to 1972. Elected to parliament in 1932, he became deputy leader of the opposition in 1947. In 1949, he became deputy prime minister and minister of agriculture. He became leader of the National Party in 1957.

Holyoake was born at Pahiatua, in the North Island. He left school at the age of 12 when his father was taken ill, but he continued his education through correspondence courses. He worked as a dairy farmer and tobacco grower, and held important positions in farmers' associations.

HONE HEKE. See HISTORY OF NEW ZEALAND (Heke's Revolt) in this volume.

HONEYEATERS are birds that have brush tongues for sucking up nectar. They can hang upside down on their strong hind claws to reach the flowers. They help to pollinate the flowers of the gum trees. All honeyeaters feed on insects as well as nectar. Many of the larger species also feed on fruit. Members of this group are found in all parts of Australia, including the centre. Many species suspend their cup-shaped nests from the outside leaves of trees. The smallest species are 10 centimetres (4 inches) long. The largest are 45 centimetres (18 inches).

Scientific Classification. Honeyeaters belong to the family *Meliphagidae*.

HONGI HIKA (1777-1828), a famous Maori chief and warrior, was head of the Ngapuhi tribe in the early 1800s. Under his leadership, the warriors of his tribe won many battles against other tribes who lived in the North Island of New Zealand. In 1814, Hongi visited Australia, where he met the missionary Samuel Marsden (see MARSDEN, SAMUEL, in the other Australasian volume). Hongi agreed to protect missionaries sent by Marsden to New Zealand. One of these missionaries, Thomas Kendall, later took Hongi and another chief to Britain to help compile a dictionary of the Maori language. In Britain, many people gave Hongi gifts. He later sold these gifts in Australia to buy guns for his tribe. For the next seven years, the heavily armed Ngapuhi tribe waged a series of battles against other tribes in the Hokianga, Thames, Auckland, Waikato, and Rotorua areas of the North Island. Most of these tribes lived in constant fear of Hongi. During fighting in dense bush at Whangaroa, on the north-western coast, Hongi was shot and died from his wounds.

HOOP PINES, also called *colonial pines* or *Moreton Bay pines,* are among the largest of the few species of Australian pines, reaching to 60 metres (200 feet). They grow tall and straight in belts and patches among other timber in forested country and occasionally on flat or hilly country on the south coast of Queensland and the north coast of New South Wales. These pines are the most widely used of Australian softwoods for joinery, furniture, flooring, shelving, plywoods, and veneers.

Scientific Classification. Hoop pines belong to the family *Coniferae* and the genus *Araucaria.* They are species *A. cunninghamii.*

HOPE, ALEC DERWENT (1907-), became one of Australia's most distinguished poets and critics. He contributed poetry and articles to various Australian periodicals. His small output includes *The Wandering Islands* (1955) and *Poems* (1960).

Hope wrote entirely in traditional verse forms, and completely mastered every verse form he used. He was unusual in his time for avoiding experimental verse, which pre-occupied many of his contemporaries. He was one of the few Australian poets to use satire as a means of expression.

During the 1950s, Hope criticized the *Jindyworobak* school of poetry, which emphasized Australian nationalism and traditions (see LITERATURE OF AUSTRALIA [Poetry] in this volume). He wrote both lyric and satiric poetry.

Many of Hope's earlier poems stress the loneliness of the individual and the impossibility of complete communication between one human being and another. These pessimistic poems stress the intolerable life that must be endured alone, in a universe completely indifferent to man's fate.

The first poems in *The Wandering Islands* clearly illustrate his theme that all man's endeavour must end in frustration. This theme is most clearly and simply expressed in one of his finest poems, "The Death of the Bird," in which the bird follows her biological pattern until she dies. Even in writing on love, Hope sees no real help for man's essential loneliness. "Imperial Adam," called Hope's most perfect poem, has a message of despair.

Hope's later poems express his conviction that poetry can regenerate man—supply a spiritual need in a material world—and, in its own highly specialized way, establish some communication between isolated individuals. One of his finest poems on this creative spirit is "Pyramis, or The House of Ascent." In it, the poet's creative impulse is compared to that of the ancient Egyptians who built indestructible pyramids "in the waste." The universe is the waste in which only the artist can produce something to give man inspiration and a sense of continuity.

Hope was born at Cooma, in New South Wales. He studied at Sydney and Oxford universities to be a teacher, and later became a vocational psychologist and a university lecturer. In 1951, he became professor of English at Canberra University College, which became the School of General Studies of the Australian National University. He retired in 1968.

HOPE, LOUIS (1817-1894), founded the Queensland sugar industry. He established a sugar plantation at Ormiston, near Brisbane, in 1862 with the help of his manager, John Buhot. In 1864, Hope built the first commercial raw sugar mill in Australia. Commercial sugar production spread rapidly. Hope was born at Hopetoun, in Scotland, a younger son of the fourth Lord Hopetoun. He migrated to Australia in 1846. In 1867, the Queensland government granted him land at Coomera river. He raised sugar there until 1884, when he returned to Britain.

HOPKINS, JOHN (1927-), was director of music for the Australian Broadcasting Commission from 1963 to 1973. He was then appointed dean of the school of music in the Victorian College of Arts. He was born at Preston, in Yorkshire, and studied at the Royal Manchester College of Music. Hopkins was conductor of the British Broadcasting Corporation's northern orchestra from 1952 to 1957. He conducted the orchestra of the New Zealand Broadcasting Service from 1957 to 1963.

HOPMAN, HARRY (1906-), was captain of the Australian Davis Cup team in 1938 and 1939 and became non-playing captain in 1950. Under his leadership, Australia lost on only four occasions: 1938, 1954, 1958, and 1963. He was born in Sydney, and named HENRY CHRISTIAN HOPMAN. As a player, he played in five Davis Cup competitions between 1928 and 1939. He also played squash, and won the Australian squash rackets title three times.

HORNE, DONALD (1921-), an Australian author, wrote *The Lucky Country* (1964). It was an evaluation of Australian society in the 1960s. Horne examined many aspects of life in Australia including the arts, sport, and politics. He questioned traditional attitudes and pointed out the necessity of a new outlook if Australia was to remain the "lucky country" that perhaps it had not always deserved to be. The book, written in a clear, easy style, displays considerable wit. Horne's other works include *The Education of Young Donald* (1967) and *The Next Australia* (1970). Horne was born in Sydney and educated at Sydney University and Canberra College. He was editor of *The Bulletin* in 1961 and 1962 and from 1967 to 1972.

Sydney Morning Herald

HORSE-RACING is a popular sport in Australia, Malaysia, New Zealand, and Singapore. Thousands of people visit racecourses daily to bet on horses. Australians wager more than $A 400 million a year on horses and New Zealanders wager about $NZ 120 million.

Horse-racing is also an important industry. It provides work for thousands of people in racing clubs, on racecourses, and on stud farms. New Zealand's rich limestone pasture-land is particularly suitable for breeding bloodstock. Racehorses bred on New Zealand stud farms are exported to Australia, Japan, Malaysia, and the United States.

Kinds of Races

The chief kinds of horse-racing in Australia and New Zealand are flat-racing, steeplechasing, hurdle racing, and trotting. Malaysia and Singapore have only flat-racing events. In Australia, the chief racing club in each state controls horse-racing. In Malaysia, horse-racing is under the control of the Malayan Racing Association. In New Zealand, the controlling bodies are the New Zealand Racing Conference and the New Zealand Trotting Conference.

Flat-Racing. In Australia, race meetings are held in all the states, but the chief meetings are held in New South Wales, Queensland, Western Australia, and Victoria. The three big racing carnivals are the autumn and spring carnivals held in Melbourne and Sydney and the winter carnival held in Brisbane.

Australia's most important race is the Melbourne Cup, a handicap event run over 2 miles (3·2 kilometres) at Flemington racecourse on the first Tuesday in November. The Melbourne Cup and the Caulfield Cup, also run at Melbourne, together make up the Melbourne spring double. The Australian Jockey Club runs a spring double at Randwick, near Sydney: the Epsom Handicap, a 1-mile (1·6 kilometre) race, and the Metropolitan Handicap, run over 13 furlongs (2,615 metres). The chief autumn races include the Australian Cup, Newmarket Handicap, and Oakleigh Plate in Melbourne, and the Doncaster Handicap, the Golden Slipper, the Australasian Championship Stakes, and the Sydney Cup, in Sydney. The chief races at the winter carnival in Brisbane include the Brisbane Cup and the Stradbroke Handicap, at Eagle Farm, and the Doomben Ten Thousand and Doomben Cup.

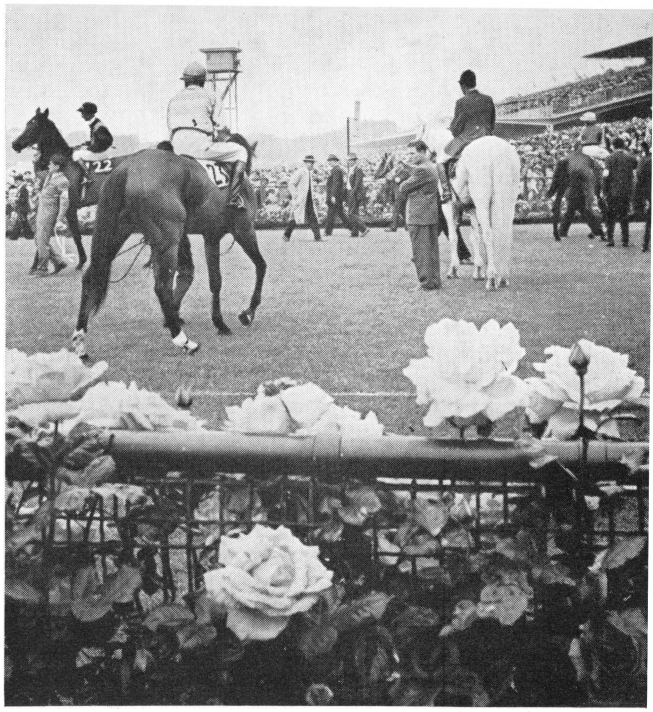
Malaysia's chief racecourses are at Ipoh, Kuala Lumpur, and Penang. Penang racecourse is the largest in the country. Singapore has a fine racecourse at Bukit Timah. The Singapore Gold Cup is one of the main racing events.

New Zealand's chief cup races are the New Zealand Cup, run at Riccarton, near Christchurch; the Wellington Cup, run at Trentham, near Wellington; and the Auckland Cup, run at Ellerslie, in Auckland. Other races include the Great Northern Champagne Stakes, run at Ellerslie, the New Zealand St. Leger Stakes, held at Trentham, and the New Zealand Oaks, run at Riccarton.

Steeplechasing is particularly popular during winter. In Australia, jumping races are confined to South Australia and Victoria. The main jumping events are the Australian Hurdle, Australian Steeple, Grand National Hurdle, and Grand National Steeple. All these races are run at Melbourne during the winter. Jumping races are also held at Warrnambool, in Victoria, and Onkaparinga, in South Australia. Steeplechasing events in New Zealand include the Great Northern Steeplechase, run at Ellerslie, and the Wellington Steeplechase, run at Trentham.

Trotting. In Australia and New Zealand, trotting meetings are held in late evening or at night. The chief night trotting tracks in Australia are Harold Park, in Sydney, Gloucester Park, in Perth, Melbourne Showgrounds, in Melbourne, Albion Park, in Brisbane, and Wayville, in Adelaide.

Horse-Racing is a thrilling spectator sport. Thousands of people throng racecourses to enjoy the excitement of major race meetings. The Melbourne Cup is one of Australia's richest races. It is held at Flemington, in Victoria, on the first Tuesday of November each year.



Brian McArdle

The most important trotting event in New Zealand is the New Zealand Trotting Cup, held each November at Addington, near Christchurch. Horses from Australia and New Zealand run in the Inter-Dominion Championship, held each year in one of the main trotting centres of Australia or New Zealand. These centres are Adelaide, Auckland, Brisbane, Christchurch, Dunedin, Melbourne, Perth, and Sydney. The grand final of the championship is run over 13 or 14 furlongs (2,615 or 2,816 metres). Horses qualify for the final by winning points in preliminary heats. Prizes in these championships, including those for heats and finals, amount to about $A 48,000.

Pacing-races are also held under the trotting code. Saddle pacing events are held only at some country meetings. Pacers from Australia and New Zealand compete in Inter-Dominion Championships.

History

Races. Army officers held Australia's first official race meeting in Sydney on Oct. 15, 1810. In 1840, the Melbourne Race Club held a meeting at Flemington. Many of Australia's best-known races date from the second half of the 1800s. The Melbourne Cup was first run in 1861, the Sydney Cup in 1866, and the Caulfield Cup in 1879. The first recorded trotting contest was held at a sports meeting at Parramatta in 1803. The first inter-dominion trotting championship was held at Perth in 1936. New Zealand's first race meeting was held at Wellington in 1841. Horse-racing in Singapore dates from the founding of the Singapore Sporting Club in 1842. Malaysia's first meeting was at Ipoh in 1913.

Horses. The most famous racehorses of Australia and New Zealand include Bernborough, Carbine, Gloaming, Mainbrace, Phar Lap, and Tulloch. Phar Lap was foaled in New Zealand in 1926, but spent most of its racing life in Australia. In 1932, it won the Agua Caliente Handicap in Mexico. Gloaming was bred at the Melton Stud in Victoria. It won many races for its New Zealand owner, W. S. Greenwood. Tulloch is the only horse that has won more than $A 200,000 in prize-money in Australia. Famous New Zealand trotters include False Step and Indianapolis. Both horses won the New Zealand Trotting Cup three times in a row.

Jockeys. Australian jockeys are among the best in the world. Many of them have ridden on racecourses in Malaysia and New Zealand. A number of Australian jockeys have been successful in Britain since the 1950s, especially Scobie Breasley, Ron Hutchinson, and George Moore. Breasley was the British champion jockey four times, including three successive years from 1961 to 1963. Moore won the English Derby in 1967. Famous New Zealand jockeys include Bert and Jim Ellis, Hector Gray, Grenville Hughes, Roy Reid, and Keith Voitre.

Owners and Trainers. In New Zealand, R. J. Mason was one of the leading trainers of the late 1800s and early 1900s. The Sultan of Johore and Sultan Iskandar Shah were among the most famous trainers in Malaysia. Sultan Iskandar's most successful horse, Café Royal, won the Singapore Gold Cup in 1929. Between 1932 and 1949, Marinus Van Breukelen trained five winners of the Singapore Gold Cup. Trainer Tom J. Smith has broken all Australian training records and is believed to have broken a world record by winning the Sydney trainers premiership 22 times in succession.

Related Articles in World Book include:

Main Volumes

Horse
Horse Racing

Australasian Volumes

Bernborough
Breasley, Scobie
Caulfield Cup
Gambling
Melbourne Cup
Phar Lap

HORSHAM (pop. 11,046) is a city on the Wimmera river in the Wimmera district of central western Victoria. The city serves a rich agricultural district that produces wheat, wool, oats, barley, hay, fruit, vegetables, olives, and dairy products. Horsham has an olive-processing plant, a skin and hide store, a flour mill, and a butter factory. Local secondary industries include a foundry, cement works, plaster factories, light steel works, and joinery works, a clothing factory, a sawmill, and timber yards. The Longerenong Agricultural College near Horsham conducts an extensive research programme into the yield properties, resistance to disease, and bread-making properties of wheat. The site was reserved in 1850.

HOSPITALS. See HEALTH SERVICES (Medical Care) in this volume.

HOTHAM, SIR CHARLES (1806-1855), was governor of Victoria in 1854 and 1855. He was born in Suffolk, in England, and arrived in the colony during disputes on the Victorian gold-fields. He promised the miners the right to vote, but only if they paid for gold-mining licences. At Ballarat, miners refused and burnt their licences. Hotham sent troops there, and they stormed the Eureka Stockade. In 1855, he appointed a commission to look into miners' grievances. See also EUREKA STOCKADE and HISTORY OF AUSTRALIA (The Eureka Stockade) in this volume.

HOUSE OF ASSEMBLY. See PAPUA NEW GUINEA (Administration); SOUTH AUSTRALIA (Government); and TASMANIA (Government) in the other Australasian volume.

HOUSE OF REPRESENTATIVES. See GOVERNMENT OF AUSTRALIA (The Federal Parliament) and GOVERNMENT OF NEW ZEALAND (Parliament) in this volume.

HOUSES. See ARCHITECTURE in this volume; and PIONEER LIFE (Housing) in the other Australasian volume.

HOUTMAN, FREDERIK DE, was a Dutch navigator who ran aground off the western coast of the Australian continent in 1619. He was captain of the *Dordrecht*. He named Houtman Abrolhos Islands, and explored the mainland. On his return to Batavia (now Jakarta), he reported unfavourably about the area. Historians know little about his life.

HOVELL, WILLIAM (1786-1875), an Australian explorer, became famous for his discovery in 1824 of a direct land route from Lake George, south of Sydney, to Bass Strait. He was travelling with Hamilton Hume. Hovell returned to Port Phillip Bay with another party in 1826. His full name was WILLIAM HILTON HOVELL. He was born at Yarmouth, in England. He was a ship's captain and landed in Sydney in 1813, but eventually settled on the land near Narellan, in New South Wales. See also HUME, HAMILTON, in this volume.

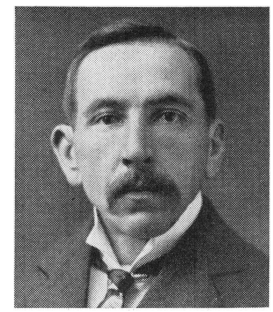
HOWE, GEORGE (1769-1821), was the first official government printer in New South Wales. He was born in the West Indies, but, in 1800, was transported to New South Wales, probably for a political offence. In 1802, he printed the first book in Australia, *New South Wales General Standing Orders.*

HUDSON, SIR WILLIAM (1896-), a New Zealand-born engineer, was the commissioner for the Snowy Mountains Hydro-Electric Authority from 1949 to 1967. He was involved in building many New South Wales dams, including the Nepean, the Woronora, and the Warragamba. He also supervised construction of dams in France, Scotland, and New Zealand. He was born at Nelson in the South Island. He was knighted in 1955.

HUGHES, GEORGE, was Australia's first printer. He arrived in Australia as a convict. He did all his work at Government House, in New South Wales. He printed a number of proclamations and instructions issued by Governor John Hunter in November, 1796. Hughes left the colony in the same year.

HUGHES, WILLIAM MORRIS (1862-1952), the "little digger", was prime minister of Australia from 1915 to 1923. He helped to rally the Australian people behind the war effort during World War I.

In August, 1915, he succeeded Andrew Fisher as Labor prime minister. Hughes wanted to strengthen the Australian army by introducing conscription. In 1916, he submitted this proposal to a general referendum, but was defeated. The Labor party expelled him. Hughes then joined with the Liberal opposition and formed a National party cabinet. In December, 1917, he held a second referendum on conscription, but was defeated again. But he retained his leadership of the country. People affectionately nicknamed him "Billy" Hughes or the "little digger." At the end of the war, he signed the Treaty of Versailles on behalf of Australia, and gained an Australian mandate over what had been German New Guinea.



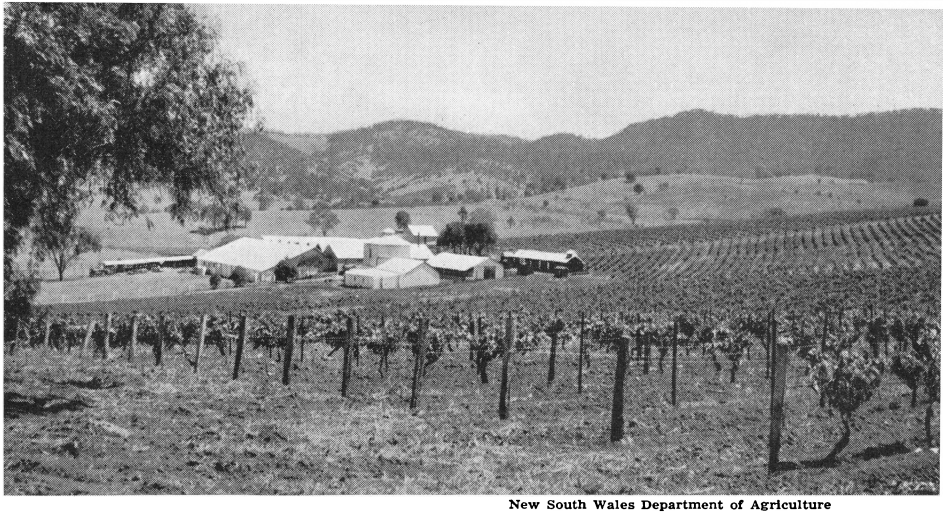
Australian News

William Morris Hughes

Hughes was born of Welsh parents in London. He landed in Australia when he was 22 years old. During the period of industrial strife in the early 1890s, he was secretary of the Waterside Workers' Federation, one of the most active unions in the new labour movement. In 1894, he became a member of the New South Wales parliament, and did much to strengthen the political representation of trade unions. He entered the federal parliament in 1901. In 1903, he became a barrister. In the first federal Labor government of 1904, he was minister for external affairs. He also served as attorney-general from 1908 to 1921.

After resigning as prime minister, Hughes remained in parliament to become minister of external affairs from 1937 to 1939, attorney-general in 1939 and 1940, and minister for the navy in 1940 and 1941. He retired from parliament in 1949.

HUKA FALLS drop 11 metres (35 feet) on a part of the Waikato River between Wairakei and Taupo in the North Island of New Zealand. *Huka* is the Maori word for *foam*. The falls are about 15 metres (50 feet) wide.



The Hunter Valley contributes much to Australia's economy. Near the mouth of the Hunter River, rich coalfields support major industries in industrial centres, such as Newcastle. Farther inland, farms stretch across the lush countryside.

New South Wales Department of Agriculture

HUME, HAMILTON (1797-1873), the first Australian-born explorer, did much to open up the southeastern corner of the Australian continent. On his most famous expedition, in 1824 and 1825, he and William Hovell led a party of six other men to find a land route from Sydney to Bass Strait. They left Lake George, south of Sydney, on October 2. They crossed the Murrumbidgee River by taking the wheels off their carts and floating them across like punts. They then crossed the Tumut River and found their way blocked by the Snowy Mountains. Hume eventually found a pass through the mountains, but had to abandon the carts to cross the deep valleys. On November 16, the party came to a broad river. Hovell named it Hume's River. Charles Sturt later renamed it the Murray in 1829. On Dec. 16, 1824, they reached the western shore of Port Phillip Bay. Hume displayed his brilliant leadership on the return journey. He saved about 150 miles by taking a more direct route to Ovens River. The party found their abandoned carts, and were able to replenish their depleted supplies. On Jan. 18, 1825, they reached Lake George.

Australian News

Hamilton Hume

Hume was born at Parramatta, near Sydney. In 1816, he discovered Lake Bathurst and the Goulburn Plains with James Meehan, a government surveyor. He explored a land route to Jervis Bay in 1818, and explored with Charles Sturt in 1828.

See also AUSTRALIA (map) in this volume; HOVELL, WILLIAM, and STURT, CHARLES, in the other Australasian volume.

HUME RESERVOIR stands on the Murray River on the border of New South Wales and Victoria, near Albury. The dam is 43 metres (142 feet) high. The reservoir holds 3,100 million cubic metres (2,500,000 acre feet) of water. The original dam was built in 1926. In 1962, engineers increased its capacity to supply additional water to irrigate the Murray Valley.

HUNGERFORD, THOMAS ARTHUR GUY (1915-), wrote *The Ridge and The River* (1952). Critics generally consider it the best Australian novel of World War II. It is a tense story of the New Guinea campaign. Hungerford was born in Perth.

HUNTER is a river in eastern New South Wales. It rises in the Mt. Royal Range and flows south-westwards past Muswellbrook, then south-eastwards to the Pacific Ocean at Newcastle. The Goulburn River is the chief tributary of the Hunter. The Hunter basin covers an area of about 22,100 square kilometres (8,500 square miles).

The Hunter valley is a rich agricultural and grazing area. It is also a rapidly developing industrial area, especially around the port of Newcastle. See NEWCASTLE in the other Australasian volume.

Dairying is the most important rural activity in the Hunter valley, especially on the fertile alluvial river flats. There are large dairy factories at Muswellbrook, Singleton, Hexham, and Dungog. These plants process milk for the New South Wales Dairy Industry Authority, which supplies the milk to Sydney and Newcastle. The factories also produce butter, cheese, powdered milk, and ice cream.

Meat production is also important in the valley. Beef cattle graze on the hills and ridges of the valley margins, particularly between Scone and the coast. Farmers raise sheep in the north-western part of the valley but the sheep are bred mainly for wool rather than for meat. Many of the dairy farms also keep pigs. The largest abattoirs are at Newcastle, Maitland, and Aberdeen. Meat processed in the valley is sold locally, in Sydney, and overseas.

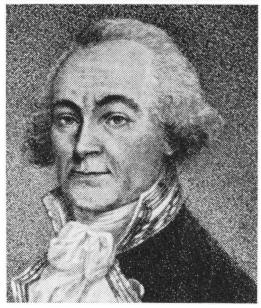
Farmers use most of the wheat grown to feed stock. They also grow maize, oats, sorghum, barley, millet, and other grains. Lucerne is the most common fodder crop. Vegetable growing is centred on Maitland. Farms are small, but the soil rich.

The cultivation of grapes for red and white table wines started in the Hunter valley in the 1830s. Vineyards are located on the red and brown sandy loam soils near Pokolbin, Dalwood, and Cessnock.

Coal has been an important factor in the industrial development of the valley. Large thermal electricity generating stations at Wangi Wangi and Vales Point on Lake Macquarie, and at Liddell, near Muswellbrook, have their own coal mines nearby.

HUNTER, JOHN (1737-1821), was the second governor of New South Wales. He held the position from 1795 to 1800. Arthur Phillip, the first governor, left the colony in 1792. Between 1792 and 1795, successive commanders of the New South Wales Corps acted as lieutenant-governors. They allowed their officers to become large landowners, and to monopolize trading in the colony. The British government commissioned Hunter to restore discipline. He soon came into conflict with the officers of the corps. But, despite his efforts, private land-holding, the assigning of convicts as servants, and trading in rum continued. Hunter was born at Leith, in Scotland, and attended Aberdeen University for a short time before going to sea. He became a lieutenant in the British navy in 1780. In 1788, he was appointed captain of H.M.S. *Sirius*. He became a vice-admiral in 1810. See also HISTORY OF AUSTRALIA in this volume; NEW SOUTH WALES CORPS in the other Australasian volume.

John Hunter
Australian News



HUNTING. In New Zealand, many people learn to hunt as soon as they are old enough to handle a rifle or a shotgun. Their country abounds in wild-life, much of it close to the cities. But, in Australia, people have difficulty in finding animals to hunt, especially in the drier regions. For this reason, hunting is not such a common sport in Australia as it is in New Zealand. In Malaysia and Indonesia, many people regard hunting as a rich man's sport. In these countries, wealthy sportsmen often hunt with *bearers* (porters). These hunters ride in jeeps or on elephants or shoot from *machans* (tree shooting-platforms).

In Australia, deer are the most exciting quarry for hunters. Only six species of deer live in Australia. Deer were originally introduced into Australia from other countries. The herds are not as large or as widespread as in some countries. But, since 1950, some hunters have collected as trophies several deer heads that any hunter in the world would be proud of. Local deer hunters locate the herds by painstakingly tracing the records of the original importations. Deer seldom wander far from where they are released. But only a few hunters know the precise locations of the herds. By keeping the locations secret, they hope to protect the animals from careless hunters who might shoot a doe or an immature stag.

Ducks are the quarry most frequently shot. Most states have limited *open seasons* for duck shooting—that is, seasons in which duck shooting is permitted. On the day these seasons open, thousands of shooters go out into swamps with shotguns. They must buy duck-shooting licences, and they are generally allowed to shoot only 10 ducks each. Wardens and rangers see that they do not take more ducks than the law allows and do not shoot the birds in *closed seasons*—that is, seasons in which shooting is not permitted.

Some Australian hunters shoot kangaroos, but many people do not approve of this practice. The number of kangaroos in Australia seems to be diminishing. Some professional hunters sell the carcasses of kangaroos to be used for pet food. Kangaroos are so easy to shoot that most sportsmen will not fire at them.

Other quarry in Australia include rabbits, foxes, crocodiles, dingoes, wild pigs, and goats. Rabbits were once the main quarry of hunters in Australia. But few rabbits have survived the myxomatosis epidemic and large-scale poisoning. Foxes are also becoming rare in settled areas. Crocodiles are scarce. They live mainly in the warm rivers in northern Australia. Many hunters shoot them to sell their skins. In Queensland, crocodiles are protected by law. Hunters can shoot buffaloes in the Northern Territory only when they observe rigid shooting laws. Many hunters consider that dingoes are the most difficult of all animals to shoot, because a hunter needs great skill to stalk them. Wild pigs sometimes become pests to farms. Farmers often invite shooters to help clear them from their properties. Goats also provide good shooting.

In Indonesia. Hunting for sport, rather than for food, is a new concept to most Indonesians. But many rubber planters and oil experts enjoy unusually good hunting in the country. They hunt mainly for trophies, seldom for meat or skins. Deer abound in Indonesia. Quail, snipe, and other swamp-land birds are plentiful in marshy areas. Other main quarry in Indonesia include Javan rusa, Axis deer, wild pigs, Timor buffaloes, and jungle animals, such as snakes and monkeys.

In Malaysia, some sultans still go hunting on elephants accompanied by many bearers. Plantation chiefs, wealthy businessmen, and rich visitors also hunt in this way, especially in the wilder areas. They can shoot Axis deer, wild pigs, and tigers. Most of these wealthy hunters shoot for sport, seeking trophy heads and fine skins.

In New Zealand. Hunters know New Zealand for the thrills of hunting its wild-fowl and its huge wild pigs. But the most popular quarry is deer. Deer are pests in New Zealand. Authorities give hunters *bounties* (payments) for deer heads in an effort to reduce the numbers of these animals. But only fit, hard-climbing hunters can shoot the animals. These hunters must be able to shoot well from a great distance. New Zealand has seven species of deer. They are the wapiti, found in the southern Fiordlands; red deer, found mainly in the mountains of both the North Island and the South Island; fallow deer, in Wanganui and Southland; sambar, in the Lake Taupo region, Manawatu, and Rotorua; Javan rusa, in the Kaingaroa Plains, near Rotorua; Japanese deer, in the central part of the North Island; and Virginia deer, on Stewart Island and near Lake Wakatipu. Skilled hunters also shoot chamois and thars.

See also HUNTING in the main volumes.

HUON is an area made up of three municipalities in southern Tasmania: Huon, Esperance, and Port Cygnet. Huonville, on the Huon River, is the largest centre. The Huon area has rich orcharding, hop-growing, dairying, and timber-producing industries. Some small fruits are grown. In the fruit-picking season, overseas ships visit Port Huon to load fruit.

HUON PINES grow naturally along or near rivers in the cool, temperate rain forest of western and south-western Tasmania. The timber is the best of the Tasmanian softwoods. It is durable, soft, smooth, oily, and straight-grained. Once cut in large numbers for boat-building and joinery, Huon pines are now rare. A small reserve on the Denison River in south-western Tasmania has been set aside specially to preserve them.

Scientific Classification. Huon pines belong to the *Podocarpaceae* family and the genus *Dacrydium*. They are species *D. franklinii*.

HUTT, JOHN (1795-1880), was governor of Western Australia from 1839 to 1846. He encouraged the colonists to make greater use of existing resources and halted uncontrolled expansion in the colony. He insisted that land leased from the government be improved within a certain time limit, and allowed the colonists to take up extra grazing land only if they needed it for the improvement of their farms. During his term as governor, settlement was mostly confined to the coastal hills between Perth and Albany. Hutt was born in London. Before he took office as governor, he was a member of the National Colonization Society, a British association that advocated colonization along the principles put forward by Edward Gibbon Wakefield (see WAKEFIELD, EDWARD GIBBON, in the other Australasian volume).

HUTT RIVER PROVINCE is a popular tourist resort 560 kilometres (350 miles) from Perth. In 1970, Leonard Casley had a difference of opinion with the state government of Western Australia over wheat quotas. He formally seceded from the state and declared his property an independent province under the British Crown to be known as *The Hutt River Province*. In 1971, he and his wife adopted the titles of Prince Leonard and Princess Shirley.

HUTT VALLEY. See LOWER HUTT in this volume; WELLINGTON (province; In the Towns) in the other Australasian volume.

HYDRO-ELECTRICITY. See ELECTRIC POWER in this volume.

HYPIPAMEE CRATER is a deep, scenic lake in the Atherton Tableland. It is located north-west of Cairns, in northern Queensland. Formed in the crater of an extinct volcano, the Hypipamee Crater is similar to Lake Barrine and Lake Eacham, two other lakes in the same district.

The volcano that formed the Hypipamee crater developed during the early Palaeozoic age. At that time, volcanoes erupted continuously over the Atherton Tableland.

A single massive basaltic cylinder rising to 873 metres (2,911 feet) above sea level forms the walls of Hypipamee crater. The lake is surrounded for the most part by eucalypt woodland. The cone of the volcano and its volcanic ash have long since been eroded away.

I

AUSTRALASIA

IBANS. See DYAKS in this volume; SARAWAK (The Life of the People) in the other Australasian volume.

IDRIESS, ION L. (1890-), an Australian author, wrote many books of travel, adventure, and biography, as well as on prospecting and minerals. His first book, *Madman's Island* (1927), is based on his 7-month enforced stay with a mate on an island off the Queensland coast. *The Desert Column* (1932) concerns his war experiences. Among his other books are two biographical narratives, *Lasseter's Last Ride* (1931) and *Flynn of the Inland* (1932), and *Drums of Mer* (1933), part-fiction, about the customs of the Torres Strait Islanders. ION LEWELLYN IDRIESS was born in Sydney and educated at state schools and the Broken Hill School of Mines. He worked as seaman, station hand, drover, opal miner, and prospector, and travelled widely in Australia and New Guinea. He served in World War I on Gallipoli and in Syria and Palestine.

ILLAWARRA is an industrial and agricultural district that stretches along the eastern coast of New South Wales from Stanwell Park, 48 kilometres (30 miles) south of Sydney, to the Shoalhaven River. The region is a narrow coastal plain bounded on the west by the Illawarra Range. About 150,000 people live in the district. In the north, rich coal deposits supply cheap fuel mainly for the large iron and steel works at Port Kembla. Nearby Wollongong is the commercial and industrial centre for this region. Small mining townships such as Bellambi, Bulli, and Corrimal lie around these two large towns. In the south, dairy cattle graze on the rich hill pastures. The major towns are Kiama, Gerringong, and Berry. This region is famous for the Illawarra Shorthorn breed of dairy cattle.

People first settled in the area in 1815. The first coal-mine opened at Bulli in 1859. Wollongong developed as a port for the district. In 1928, Port Kembla was established. The development of the northern region soon outstripped most other industrial centres in Australia.

See also PORT KEMBLA and WOLLONGONG in the other Australasian volume.

ILLAWARRA SHORTHORNS are milking cattle bred entirely within Australia. They are the second most numerous breed in Australia, after Jerseys. More than a third of all the dairy cattle in Australia are Illawarra shorthorns.

Farmers in the Illawarra district on the south coast of New South Wales developed the breed in the early 1800s. Their farms were isolated in heavy forest, and they were in a position to control breeding. They adopted the desirable qualities from English shorthorn breeds, adapted them to suit local grazing needs, and worked to develop the new breed.

Department of Immigration, N.S.W.

Selecting Immigrants. Officers interview applicants and check their health, character, and employment records. They also offer advice on jobs and housing.

IMMIGRATION AND EMIGRATION are of varying degrees of importance to the countries of Australasia. Australia needs immigrants to add to its small population and to expand its work force. New Zealand needs workers with certain skills to fill jobs in its industries. Malaysia has as many people as it can support, and does not want immigrants. Indonesia, too, does not want immigrants. It has too many people in some areas and too few in others. Its government promotes a programme known as *transmigration*—that is, moving people from overcrowded islands to less crowded ones.

People migrate for many reasons. Thousands left the ruins of Europe after World War II to seek new ways of life in Australia and New Zealand. Later, generous government programmes, such as assisted passages, drew thousands of others to Australasia.

Large-scale migration inevitably raises many problems. Migrants may come from various backgrounds, and many find difficulty in settling down and accepting new ways of life. The governments of Australia and New Zealand restrict immigration from some countries. But the two governments do all they can to help new arrivals to get over their problems. And migrants have greatly changed the life of both countries. They have introduced their own tastes in a wide variety of foods, their interest in wines, and their enjoyment of coffee bars. They have joined musical organizations, such as symphony orchestras, and have created an informed and sensitive audience for music. They have formed teams to play their favourite sports. In these and many other ways, migrants have greatly enriched the life of their new countries.

Immigration Policy

Australia and New Zealand are both anxious to attract immigrants. Australia suffers greatly from under-population and is less selective than New Zealand, which tries to attract mainly people with trade skills. But both countries seek immigrants who can be easily assimilated into their societies. For this reason, nearly all immigrants are Europeans and more than half are British. But neither country automatically excludes non-Europeans.

Australia. The Australian government decided after World War II that the country could no longer afford to rely on natural increase and on unplanned migration to provide the citizens it needed. It accepted that Australia must "populate or perish" if it wanted to develop its resources and become economically prosperous. The federal government set up a Department of Immigration to attract the numbers and types of immigrants the country needed.

Australia aims at a planned expansion of its population at a rate of 2½ per cent. each year. Immigration is scheduled to provide 1 per cent. of this increase. A fundamental part of Australia's immigration policy is that all immigrants should be capable of being integrated into the community easily and quickly.

Australia has restricted the entry of Asians into the country for more than a hundred years. The Immigration Restriction Act of 1901 was the formal expression of what was known as the *White Australia Policy*. Under one of its provisions, a person who could not pass a dictation test in a given language could be denied entry. See WHITE AUSTRALIA POLICY in the other Australasian volume.

The government no longer uses the term *White Australia Policy* and it does not automatically exclude non-Europeans. The minister for immigration may exercise his discretion. He may take into account the qualifications of prospective immigrants, examining the merits of each case. He may admit the husbands, wives, aged parents, or young unmarried children of Australian citizens and of British citizens residing or intending to reside in Australia.

Australian News and Information Bureau

Transporting Immigrants. Australia and New Zealand offer assisted passages to thousands of Europeans. The governments pay most of the ship or air fares.

Non-Europeans who have been "temporary residents" for five years may qualify for permanent residence and citizenship. Highly qualified and distinguished non-Europeans may be admitted for a long-term stay. Political refugees from non-European countries may stay in Australia indefinitely. Maoris are allowed entry without difficulty.

In spite of these exceptions, Australia's policy remains basically one of excluding non-European peoples. In the mid-1960s, out of a population of 11,450,000, only 37,000 were non-Europeans, apart from the Aborigines and Torres Strait Islanders. Of this number, 18,000 were temporary residents, visitors, or students. Many people of mixed descent have also been admitted since World War II, mainly from Asian countries.

Indonesia. The Indonesian government does not actively promote immigration into the country. A person who wishes to reside and work in Indonesia must obtain a work permit from the Department of Labour. He is likely to get a permit only if he is a specialist whose qualifications make him useful to the country. The government does not discriminate against particular peoples. But a national of a country with which Indonesia does not have diplomatic relations cannot obtain a work permit.

Any Indonesian is free to leave Indonesia and take up residence in any other country, provided he can prove that someone outside Indonesia has paid his fare in advance. The government made this regulation because of its severe shortage of foreign currency. The government actively encourages people to move from one island to another, particularly from Java to other islands.

Malaysia. The Malaysian government discourages immigration into Malaysia. It follows the policy that no non-Malaysian may take a job if by doing so he would displace a Malaysian citizen. A prospective immigrant must prove that he is taking a specialized job in the national interest and that he will receive a salary of at least $M 1,200 a month. The government restricts the entry of people of Chinese descent. It virtually prohibits the entry of people from communist countries.

Malaysians are free to emigrate if they wish. But the government discourages them from going to communist countries. They may move freely among the states of Malaya. But they may move from Malaya to Sabah and Sarawak only if they do not deprive citizens of those states of their jobs.

New Zealand. The New Zealand government's basic immigration policy is to admit reasonable numbers of people who can make a worthwhile economic or cultural contribution, and who will be acceptable to the community. The government traditionally gives preference to people of British stock. About four out of every five immigrants are British.

New Zealand does not totally exclude people of any race, nationality, or belief. Many non-Europeans are allowed into the country. The inhabitants of the Cook Islands, Niue, and the Tokelau Islands are New Zealand citizens, and have the right of free entry. Citizens of Western Samoa, which New Zealand used to administer, have special entry privileges.

The Immigration Act of 1964 provides that all people other than New Zealand citizens require permits to settle in the country. Under this act, the government has the right to refuse entry to people in poor health and to people with criminal records. Otherwise, the government has an absolute right to admit any prospective immigrant. But it must consider how deserving the applicant's case is compared with those of others in the same country, and whether he has some skill of particular value.

New Zealand places few restrictions on immigrants from western Europe. To avoid problems of assimilation, it allows eastern Europeans to enter the country only if they have relatives already there. It

applies similar restrictions on immigration of peoples from the countries of Asia.

Immigration Programmes

Australia is ready to grant *assisted passages* (part or all of the fares) to single men between 18 and 45, single women between 18 and 35, married couples without children between 18 and 45, and married couples with children between 18 and 50. Assisted immigrants must be of sound health and good character and must intend to live permanently in Australia. Applicants agree to refund their passage money if they leave Australia within two years of their arrival. Australia has concluded immigration agreements with Austria, Belgium, Britain, West Germany, Greece, Italy, Malta, and The Netherlands. It also has arrangements with other countries.

New Zealand runs assisted immigration schemes to ensure that the country obtains the skilled and experienced workers that it needs. Only applicants with the required qualifications receive assisted passages. As in Australia, all assisted immigrants agree to remain in New Zealand for two years. New Zealand operates immigration schemes in several European countries, but has concluded a formal agreement only with The Netherlands.

Seeking and Selecting Immigrants. In Australia, the Department of Immigration, established in 1945, has the responsibility of selecting and recruiting immigrants. In 1955, the department set up its own publicity organization to attract and inform potential migrants overseas. Since then, a team of journalists has channelled information about Australia to many countries.

The Department of Immigration has set up immigration offices in Austria, Belgium, Britain, Denmark, Egypt, France, West Germany, Greece, Hong Kong, Italy, Kenya, Lebanon, Malta, The Netherlands, Spain, Sweden, and Switzerland. In other countries, consular officers inform and select immigrants.

Australia's employment service provides these offices with information about the employment position in Australia, to provide a guide in the selection process. There is no formal quota for immigrants. The government sets a target for particular types of workers, but accepts suitable migrants beyond this target. Officers from the Department of Immigration select suitable immigrants from the many applicants, checking on health, character, and employment records. In selecting, the officers give preference to family groups rather than single people.

New Zealand also attracts immigrants by publicity and advertising. The Labour Department has its own immigration offices in London and The Hague. It also has an immigration officer at Apia to aid migrants from Western Samoa. In other countries, consular officers aid intending migrants.

Selection officers from New Zealand are based in Britain. They travel to Austria, Denmark, France, West Germany, Greece, and Switzerland to interview applicants. The officers of The Hague cover Belgium and The Netherlands. They select, in the main, applicants who are qualified skilled workers or experienced farm workers.

Many immigrants to both Australia and New Zealand are *nominated* or *sponsored*. Under the Nominated Dependants Scheme, men in Australia can sponsor their wives, dependent children, fiancées, or unmarried sisters for consideration for assisted passages. Employers in Australia may also nominate immigrants for whom they intend to provide employment and accommodation. Immigrants may also be sponsored by relatives, friends, or employers in New Zealand.

Transporting Immigrants. Australia and New Zealand have similar arrangements for transporting immigrants. Assisted immigrants pay a small contribution towards their fares. The Australian and New Zealand governments pay the remainder.

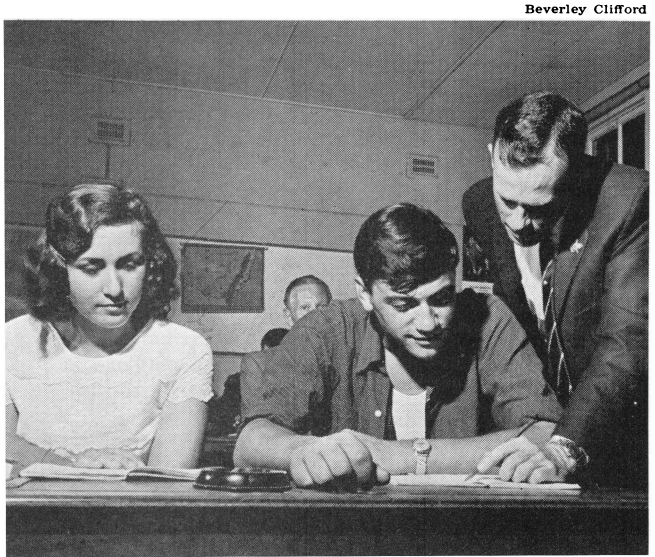
British migrants to Australia contribute $A 25 (£10) towards their passages. They travel on normal passenger liners and scheduled air flights. In the mid-1960s, half of them travelled by plane. Dutch migrants have their passages arranged through The Netherlands Emigration Service.

All other European assisted migrants travel under the auspices of the Inter-Governmental Committee for European Migration (ICEM). This organization charters ships and aircraft for migrant passages to several countries, including Australia and New Zealand. ICEM also provides interest-free travel loans for migrants from some countries. The Australian contribution towards the fare varies. In all cases, the migrants make an advance payment, which is usually a little more than that paid by British migrants.

The general Assisted Passage Scheme aids migrants who are not eligible under any of the other schemes. The scheme covers migrants from Denmark, Finland, France, the Republic of Ireland, Norway, Sweden, Switzerland, and the United States. They make their own travel arrangements, but are assisted by a contribution from the Australian government.

Migrants to New Zealand from Britain, Denmark, France, and Switzerland contribute £10 towards their fares if they are single or £20 if they are

On Arrival, immigrants may receive free English lessons and lectures about the way of life of their new country.
Beverley Clifford



After Five Years, immigrants may become citizens at a naturalization ceremony. Most British immigrants become citizens by registration.

Beverley Clifford

married. In addition, Danish, French, and Swiss migrants pay their own way to Britain to join the transport arranged for them. The New Zealand government pays all the rest of the expenses. Dutch migrants to New Zealand travel under the same arrangements as those travelling to Australia. ICEM arranges the transportation of migrants from Austria, Belgium, West Germany, and Greece.

Settling Immigrants. The Australian and New Zealand governments help immigrants to find accommodation and jobs. In Australia, the Department of Immigration is responsible for the temporary accommodation of assisted immigrants and their general welfare. Immigration officials help new arrivals with immediate problems and provide temporary accommodation in government reception centres and hostels. Most immigrants leave the centres within a few months of their arrival. The Commonwealth Employment Service co-operates with the Department of Immigration in finding work for immigrants.

In New Zealand, married immigrants must have accommodation guaranteed in advance. The Labour Department operates hostels for single people in Auckland and Wellington. It arranges employment in advance for married assisted immigrants and helps single immigrants to find jobs.

Integration of Immigrants

Problems that face immigrants vary greatly according to their backgrounds and personal circumstances. All immigrants have the problem of obtaining satisfactory employment and housing. This problem is perhaps most pressing for heads of families. But, on the other hand, single men may feel more isolated and miss their former ways of life to a greater extent. The language barrier is a difficult problem for non-British immigrants, and all immigrants have to adapt to a new environment.

The language problem is much more serious in Australia than in New Zealand, where a high proportion of immigrants are British. In Australia, the government provides free education programmes to teach newcomers English and also to give information about Australia. ICEM organizes English classes and correspondence courses in several European countries with the co-operation of the Australian government. Education officers on board ships from Europe give English lessons, and organize film shows and talks for migrants. The education authorities have devised a special method of teaching English rapidly. After arrival, classes continue in reception centres and at adult education centres.

New Zealand also helps non-British migrants to learn English. Adults can attend English classes at night at polytechnics and adult education institutions. Special classes are run for Chinese and Indians in particular areas.

Assimilation. Australia tries to help immigrants to become assimilated into the community as quickly and as easily as possible. The Good Neighbour movement, in co-operation with the churches and affiliated organizations, has about 10,000 voluntary workers. They welcome new arrivals and help them to solve their early problems. The federal government provides the administrative costs, but otherwise the movement is entirely voluntary.

The government, in co-ordinating planning on migrant assimilation, seeks advice from four main organizations. The Immigration Planning Council, composed of leading figures in industry, economics, and public administration, is responsible for developing long-term economic plans. The Immigration Advisory Council, composed of representatives of a cross-section of the Australian community, advises the minister for immigration on matters of a sociological, legislative, or administrative nature. The Immigration Publicity Council, representing the press, radio, and television, advises the minister on public relations.

The Australian Citizenship Convention, which has met every year since 1950, discusses problems raised by immigration and suggests solutions. People attending the conventions include leaders of diplomatic missions, members of the federal and state parliaments, and representatives of commerce and industry, the trade unions, church and voluntary organizations, the Good Neighbour movement, and the press.

Some Australian cities contain colonies of migrants who try to recreate the environment of their former home countries. Sociologists believe that such groups do not present a long-term problem. They think that many migrants are ill-at-ease and uncertain of themselves on arrival, and that, as a result, they seek the reassurance of familiar surroundings. Later, after gaining some knowledge of Australian life and confidence in themselves, the migrants move out into the larger community.

New Zealand has few such migrant groups. The

The Mitchell Library

During the Mid-1800s, thousands of migrants crowded onto ships sailing from London to Australia. Many hoped to make their fortunes in the newly discovered gold-fields.

main examples are concentrations of Chinese and Indians in areas favourable to market gardening, and of Italians close to fishing grounds.

Naturalization is the final step in the integration of migrants. Australia and New Zealand have similar regulations governing the naturalization of migrants. British subjects from some countries of the Commonwealth of Nations and citizens of the Republic of Ireland may become citizens by registration. In Australia, such registration is granted after they have lived in the country for one year. The period of residence in New Zealand is three years, but it may be cut to one year at the discretion of the government.

All other migrants may apply for naturalization after they have lived in the country for five years. An applicant must be of good character, intend to live permanently in the country, have an adequate knowledge of English, and know the rights and responsibilities of citizenship. Naturalization normally takes place at a ceremony before a mayor or other local official. In Australia, more than 6 out of every 10 immigrants eligible for naturalization have become citizens. In both Australia and New Zealand, naturalization confers full protection under the law, the right to stand for public office or for election to national or local government, the right (in Australia, the duty) to vote in elections, and the entitlement to an Australian or New Zealand passport. Many migrants have taken advantage of these opportunities. For example, in New Zealand, New Zealand-born Chinese have been elected to local government office, and in 1963 and again in 1966 have stood as Labour candidates for parliament.

History

In Australia, the first European immigrants were about 750 British convicts, together with the military and civilian officers in charge of them. They reached Sydney Cove on Jan. 26, 1788, under the leadership of Captain Arthur Phillip. By 1820, the British government was encouraging free men to migrate. Gentlemen farmers, retired army and navy officers, farm labourers, and adventurers went to Australia. These free settlers were assisted by free land grants. In 1830, there were approximately 63,000 convicts and 14,000 free immigrants.

After 1830, free immigrants received assisted passages. As a result of expansion northwards and westwards from Sydney and the establishment of new colonies in western and southern Australia, new settlers poured into the continent. Historians have estimated that more than 200,000 immigrants arrived between 1831 and 1850. Assisted immigrants made up over half of the newcomers to New South Wales and South Australia during this period.

In 1851, gold was discovered in New South Wales and Victoria. Migrants rushed to Australia, chiefly from Britain, China, and the United States. The population rose from a little over 400,000 in 1850 to well over a million in 1861. The population of the colony of Victoria increased sevenfold in ten years. The British government decided that transportation to a colony rich in gold was not an appropriate punishment for criminals, and ended transportation to the eastern colonies in 1853.

From 1861 until a severe economic recession in 1891, a high rate of immigration continued. More than 741,000 people landed in Australia. Assisted immigration continued for some years. Half of the immigrants to Queensland and South Australia were assisted. But assisted immigration was halted before the recession. Immigration of any sort almost ceased in the 1890s, and departures outnumbered arrivals in some years.

The White Australia Policy and the Immigration Restriction Act of 1901 resulted from the experiences and attitudes of the colonial period. Several proposals for the introduction of workers from China, India, and the Pacific islands had been

rejected. After the immigration of 17,000 Chinese to the gold-fields between 1851 and 1855, conflicts arose between Europeans and Chinese, allegedly over Chinese mining methods and morality. Some of the colonies passed legislation to restrict Chinese entry. Many Australians also resented the employment of Pacific islanders and Japanese in the sugar plantations of Queensland. By 1901, all political parties supported federal legislation designed to exclude Asians.

The Immigration Restriction Act of 1901 expressed this opposition. Under the act, any person failing to pass a dictation test of 50 words in a European language could be declared a prohibited immigrant. Any immigrant who had not completed five years' residence could also be given the test and, if he failed, be deported. Students, tourists, and businessmen from India and Japan were allowed entry for up to five years. In 1912, the Chinese were granted this concession. The Pacific Islands Labourers Act of 1901 provided for the deportation of all Pacific islanders in Queensland by 1905.

Assisted immigration began again in 1906, and Australia's population grew steadily. After World War I, 80,000 immigrants arrived under the British ex-service free passage scheme. In 1922, Britain passed the Empire Settlement Act, by which the governments of Britain and any dominion were to share equally the costs of immigration schemes. In the economic depression of the 1930s, 10,800 people emigrated from Australia.

After World War II, Australia was seriously under-populated, partly because of the low birth rate resulting from the depression in the 1930s, and partly because of the loss of more than 37,000 servicemen in the war. All political parties supported the decision of the Labor administration of J. B. Chifley to meet economic and defence needs through planned immigration. One of the earliest decisions was to set up a federal department to handle immigration. Another was to establish a country-wide employment service.

In New Zealand, the first European settlers arrived from Britain in 1840. Up to that time, the only Europeans in New Zealand had been missionaries, whalers, traders, and adventurers. Edward Gibbon Wakefield (1796-1862), a British colonial reformer, believed that New Zealand should have carefully selected settlers, including both wealthy men and labourers who would work loyally for them. In 1840, his company landed its first settlers at Wellington. Settlements were established at New Plymouth and Nelson. These settlements were not successful, partly because the Maoris disputed land claims and partly because the land was unsuitable.

Two other associations adopted Wakefield's ideas and established settlements in New Zealand. The Otago Association, sponsored by the Free Church of Scotland, founded a settlement at Dunedin. The Canterbury Association, sponsored by the Church of England, founded a settlement at Christchurch.

During the 1860s, New Zealand, like Australia, experienced a frantic gold rush. Planned settlement was forgotten. Thousands of people flocked to the gold-fields. The population in 1861 was 99,000. Six years later, it had risen to 218,000. The new arrivals were quite different in outlook from the early settlers. They believed that one man was as good as another and tended to be radical in politics.

During the 1870s, Julius Vogel was responsible for bringing many assisted immigrants to New Zealand. Between 1875 and 1879, 15,000 people, including many Germans and Scandinavians, entered the country each year on chartered ships.

In 1908, the Immigration Restriction Act severely restricted the entry of non-Europeans. Comparatively few immigrants arrived between 1927 and 1947. In 1947, the government introduced a large scale scheme of assisted immigration. Between 1947 and the mid-1960s, almost 500,000 people took up permanent residence in New Zealand.

Aids to Learning

Related Articles in the Australasian volumes of WORLD BOOK include:

Chisholm, Caroline	History of New Zealand
History of Australia	Kanakas
History of Indonesia	Voluntary Services
History of Malaysia	White Australia Policy

Outline of this article is as follows:

I. **Immigration Policy**
   A. Australia
   B. Indonesia
   C. Malaysia
   D. New Zealand
II. **Immigration Programmes**
   A. Seeking and Selecting Immigrants
   B. Transporting Immigrants
   C. Settling Immigrants
III. **Integration of Immigrants**
   A. Problems B. Assimilation C. Naturalization
IV. **History**

Books to Read about this topic include:

Appleyard, R. T. *British Emigration to Australia.* Australian National University Press, 1969.

Choi, C. Y. *Chinese Migration and Settlement in Australia.* Sydney University Press, 1974.

Price, C. A. (Ed.) *Australian Immigration: A Bibliography and Digest.* Australian National University Press, No. 1 1966, No. 2 1971.

Webb, Stephen D. and Collette, John (Eds.) *New Zealand Society: Contemporary Perspectives.* Wiley, 1973.

IMPERIAL PREFERENCES were advantageous terms of trade that were formally established between Britain and members of the British Empire at Ottawa in Canada in 1932. These preferences continued until Britain joined the European Community (European Common Market) in 1973. Preferential tariffs between Britain and other Commonwealth countries were then phased out.

IMPORTS. See TRADE OF AUSTRALIA; TRADE OF INDONESIA; TRADE OF MALAYSIA AND SINGAPORE; and TRADE OF NEW ZEALAND in the other Australasian volume.

INDERAGIRI is one of the major rivers of eastern Sumatra. It is also called the *Kuantan.* The river rises near Sawah Lunto, in the eastern foothills of the Bukit Barisan. It flows eastwards to the marshy, forested plains of Sumatra's east coast. Rengat stands at the head of the Inderagiri estuary.

INDIAN DANCES. See THEATRE (Traditional Asian Theatre) in the other Australasian volume.

INDIAN OCEAN. See INDIAN OCEAN in the main volumes.

INDONESIA is a country made up of a string of islands between Malaysia and the Philippines, on the north, and Australia, on the south. It includes parts of the world's second and third largest islands, New Guinea and Borneo. Its other large islands include Sumatra, Java, and Sulawesi. It also has more than 13,500 small islands. More than 6,000 of these islands are inhabited.

The main volumes of WORLD BOOK have hundreds of articles that contain references to Indonesia. Many articles in the two Australasian volumes relate specifically to Indonesia. This article is designed to act as a guide. It lists the chief articles in the two Australasian volumes and certain articles from the main volumes. Unless the article title has a reference to the main volumes, it appears in one of the Australasian volumes.

The Land

The islands of Indonesia lie on both sides of the Equator. They stretch for more than 4,800 kilometres (3,000 miles), from Sumatra to Irian Jaya. Parts of the country have as much as 3,658 millimetres (144 inches) of rainfall a year. The lowlands usually have humid, tropical weather with an average temperature of about 27° C (80° F), but temperatures are lower in the highlands.

The physical features and climate of Indonesia are described in the INDONESIA article in the main volumes. For further details see EARTHQUAKES; FLOODS; MONSOONS; and VOLCANOES in the Australasian volumes.

The following islands and island groups have separate articles in the Australasian volumes:

IRIAN JAYA	NUSA TENGGARA
JAVA	SULAWESI
KALIMANTAN	SUMATRA
MOLUCCAS	TIMOR, INDONESIAN

The following smaller islands also have separate articles in the Australasian volumes:

AMBON	MENTAWAI ISLANDS
BALI	SUMBA
BANGKA	SUMBAWA
MADURA	

Indonesia's 10 largest cities are on the Greater Sunda Islands. Seven of these are on Java. Almost all the industrial cities are on Java or Sumatra. Jakarta, the capital and largest city of Indonesia, stands on Java's north-western coast. Most of the chief towns of Indonesia have separate articles in the Australasian volumes.

Most islands of Indonesia have high mountains, including many volcanic peaks. One of the most famous volcanic eruptions in history was that of Krakatoa. See KRAKATOA in the main volumes. Mt. Djaja (once called Mt. Carstenz and later called Mt. Sukarno) in Irian Jaya is the highest mountain in Indonesia. The following mountains have separate articles in the Australasian volumes:

AGUNG	RANTEMARIO
BATUR	SUMBING
JAYA PEAK	SUNDORO
LAWU	TENGGER RANGE
PANANGGUNGAN	

The following lakes have separate articles in the Australasian volumes:

MANINJAU	TOBA
SINGKARAK	TOWUTI

The following rivers have separate articles in the Australasian volumes:

ASAHAN	INDERAGIRI
BARITO	SAMPIT
BATANG HARI	SOLO

Plants and animals of Indonesia are similar to the plants and animals found in many other parts of Asia. But the animals found in the eastern part of the country are more like the animals that are found in Australia. Indonesia has an incredible variety of fruit, vegetables, and cereals, but rice is the staple food crop. Trees cover much of the land.

Most of the plants and animals found in Indonesia have separate articles in the main volumes. For information on how these plants and animals form part of a world-wide pattern, see AMPHIBIAN; ANIMAL; BIRD; FISH; FLOWER; REPTILE; SNAKE; TREE; and WALLACE'S LINE in the main volumes. For a more detailed description of the plants and animals of Indonesia, see the following articles in the Australasian volumes:

AMPHIBIANS	MAMMALS
BIRDS	MARSUPIALS
FERNS	REPTILES
FISH	SANCTUARIES
FLOWERS	SHARKS
FUNGI	SPIDERS
INSECTS	TREES
LIANAS	ZOOS

People and Ways of Life

Most of the people of Indonesia belong to the group that anthropologists call *Malayo-Polynesian*. The various groups of Malays are described in the MALAYS article. Seven out of every eight Indonesians are Muslims (see ISLAM in the main volumes). See also FESTIVALS and RELIGION IN INDONESIA in the Australasian volumes.

Indonesia is extremely densely populated. On the average, more than 1,600 people live in each square mile in the lowlands of the island of Java. Most Indonesians are farmers.

Indonesia has more than 250 distinct languages and hundreds of dialects. The official language, *Bahasa Indonesia* (Indonesian language), stems from the Malay language. Bahasa Indonesia differs slightly from modern Malay in vocabulary and spelling and, to a lesser extent, in structure. Bahasa Indonesia shows great influences from Dutch and regional languages such as Javanese and Sundanese. Modern Malay shows great influences from English. See LITERATURE OF INDONESIA (Languages) and MALAYS (Language).

Government and Politics. In 1959, President Sukarno established a form of government in Indonesia known as *guided democracy*. President Sukarno also became prime minister (see SUKARNO). After Suharto replaced Sukarno as president in 1968, the Indonesian army largely controlled the government (see SUHARTO).

The Australasian volumes contain articles dealing

SUMATRA
Scale 1:10,000,000 (160 miles = 1 inch)
50 0 100 200 Statute Miles
50 0 100 200 300 Kilometres
Principal Railways
International Boundaries
3560 Heights in feet
Pipelines
COPYRIGHT GEORGE PHILIP & SON LTD.
East from Greenwich
SOUTH CHINA SEA
Strait of Malacca
THAILAND (SIAM)
MALAYA
SINGAPORE
INDONESIA
BORNEO
SARAWAK
KALIMANTAN
WEST KALIMANTAN
CENTRAL KALIMANTAN
SOUTH SUMATRA
NORTH SUMATRA
WEST SUMATRA
JAMBI
ATJEH
INDIAN OCEAN
JAVA SEA
Greater Sunda Islands
Sunda Str.
Karimata Str.
Berhala Str.
Bangka Str.
Banka Str.
Tg. Sambar
Tg. Puting
Tg. Selatan
Sampit B.
Kuala Lumpur
Medan
Kuching
Pontianak
Palembang
Bandjarmasin
Martapura
Pekanbaru
Padang
Bengkulu
Batu Radja
Menggala
Teluk Betung
DJAKARTA
Djatinegara
Purwakarta
Djatibarang
Serang
Bogor
Krakatoa
Bunguran Is.
Natuna Is.
N. Bunguran Is. (N. Natuna Is.)
Anambas Is.
Subi S. Bunguran Is. (S. Natuna Is.)
Singkawang
Niut 5580
Liangpran 7349
Schwaner Ra. 5767
Müller Ra.
Hulu Ra.
Iran Ra.
Koyan Ra.
Tahan 7186
L. Toba
Leuser 11,371
Over 12,000 feet
6000–12,000 ,,
3000– 6000 ,,
1200– 3000 ,,
600– 1200 ,,
0– 600 ,,

LUZON
Polillo Islands
Manila
Quezon City
Bataan
Pasay
Manila Bay
Lamon Bay
Lubang Is.
Cape Calavite
Batangas
Mulanay
Naga
Paluan
Calapan
Mariduque
Mindoro
Baco
Burias
Sibuyan
Busuanga
Mindoro Str.
San Jose
Tablas
Masbate
Sibuyan Sea
Calamian Group
Culion
Semirara Is.
Visayan Sea
Panay
Iloilo
Bacolod
Bacuit
Taytay
Dumaran
Imu ruan Bay
Cuyo Is.
Guimaras
Negros
Dumaguete
Palawan
Puerto Princesa
The Teeth
Palawan Islands (Philippines)
Mt. Mantalingajan 6839
Canipaan
Iwahig
C. Buliluyan
Bugsuk
Balabac I.
Balabac Str.
SOUTH CHINA SEA
SULU SEA
Dipolog
Manucan
Ozamiz
(Mizamis)
Pagadian
Zamboanga
Basilan Str.
Lamitan (Basilan City)
Basilan
Moro G.
Sibuguey B.
Sulu Arch.
Pangutaran Group
Laparan Cap
Samales Group
Tapul Group
Tawitawi
Sibutu Passage
Sibutu
Darvel B.
Semporna
Sibuko Bay
Tarakan
Kudat
Jesselton
Kinabalu 13,455
SABAH (NORTH BORNEO)
Sandakan
Lahad Datu
Labuk B.
Turtle Is.
Brassey Ra.
Magdalena 4419
Melalap
Beaufort
Victoria
Labuan I.
Brunei
BRUNEI
Miri
Bintulu
Tubau
Koyan Ra.
Tama Abu Ra.
Crocker Ra.
Tandjung Selor
Tandjungbatu
Tandjung Redeb
Dumaring
Tg. Mangkalihat
Sesajap Lama
Malinau
Bunyu
CELEBES SEA
N. Bunguran Is. (N. Natuna Is.)
Bunguran Is.
Natuna Is.
Telukbutun
Bindjai
Matak
Siantan
Anambas Is.
Midai
Subi S. Bunguran Is. (S. Natuna Is.)
Serasan
Tg. Datu
SARAWAK
Oya
Mukah
Sibu
Binatang
Sarikei
Kanowit
Kapit
Rajang
Hose Mts.
Iran Ra.
Kapuas Hulu Ra.
Kapuas
Kuching
Lundu
Simunjan
Sambas
Singkawang
Niut 5580
Serian
Tebakang
Simanggang
Lubok Antu
Engkilili
Betong
Tambelan Is.
Badas Is.
Pedjantan
Mampawah
Pontianak
Ngabang
Sanggau
Sintang
Tajan
Putussibau
Semitau
Mendale
Mauradjuki
Longiram
Muara Kamam
Bontang
Samarinda
Sangasanga
Muaratewe
Balikpapan
Sungaitiram
Sangkulirang
Liangpran 7349
Merah
Kayan
Müller Ra.
Schwaner Ra.
Saran 5767
Kapuas
Simpang
Sukadana
Karimata Is.
Padang
Pangkalpinang
Bangka
Koba
Tobali
Tandjungpandan
Billiton
Manggar
Dendang
Karimata Str.
Tg. Sambar
Ketapang
Kendawangan
Katowaringin
Matua
Kumai
Sampit
Kualakapuas
Kualapembuang
Sampit B.
Tg. Puting
Kandangan 6207
Bandjarmasin
Martapura
Pelaihari
Tempaka
Djorong
Pagatan
Sebuku
Karambu
Kotabaru
Laut I.
Tanahgrogot
Tandjung
Amuntai
Barabai
Besar
Little Paternoster
Balangan Is.
Djangeru
Sungaianjar
Buntok
Kuala Kurun
Puruktjau
Barito
Kahajan
Kapuas
Mahakam
Kutai
Kalimantan
Palangka Raja
Mandoe
Tjoelik
Kalimantan Tengah
Kalimantan Selatan
Kalimantan Timur
BORNEO
Tg. Puting
Tg. Selatan
Tg. Sambar
Tg. Mangkalihat
Strait of Makassar
SULAWESI (CELEBES)
Kolonodale
Palu
Donggala
Parigi
Todjo
Poso
Tokala 2622
L. Poso
Banggai
Luwuk
Balaing
Tuli
Peleng
Malik
Poh
Togian Is.
Tomini
Gorontalo
Kuandang
Tilamuta
Paleleh
Buol
Toitoi (Kampungbaru)
Donda B.
Maling
Tomini 8810
Sumalata
G. of Tomini
Gulf of Boni
Gulf of Bone
Mamuju
Mamasa
Palopo
Onan
Rantemario 11,286
Mekongga 9153
Mondeodo
Kendari
Manui
Monse
Wowani
Madjene
Polewali
Pinrang
Rapang
Parepare
Pampanua
Watampone
Pankadjene
Makasar
Sungguminasa
Lompobatang 9414
Bonthain
Kabaena
Muna
Butung
Baubau
Wangi Wangi
Napabalana
Roha
Lowele
Matana
Tolo
Towuti
Malili
Galumpang
Masamba
Kolaka
Pisang
Samak
Sindjai
Mara
Pasir
Balangnipo
Benteng
Salajar
Matjan Is.
Hadedis
Postiljon Is.
Tanahdjampea
Kalao
Bonerate
Kalaotoa
Lesser Sunda
FLORES
Ruteng
Flores
Riung
Aimere
Ende
Maumere
Larantuka
Adonara
Lembata
Solor
Labao
Labuhanbadja
Sumbawa
Bima
Raba
Sumba Str.
Sumba (Sandalwood)
Waingapu
Sawu Sea
Waikabubak
Memboro
Tambora
Lombok
Mataram
Ampenan
Rindjani 12,224
Bali
Denpasar
Benoa
Singaradja
Nusa Tenggara
Kangean Is.
Madura
Bangkalan
Sampang
Pamekasan
Sumenep
Probolinggo
Situbondo
Pasuruan
Surabaya
Gresik
Lamongan
Tuban
Bojonegoro
Cepu
Madiun
Kediri
Blitar
Malang
Djember
Banjuwangi
Lawu 10,712
Tulungagung
Semeru 12,060
Kudus
Semarang
Kendal
Pekalongan
Pemalang
Tegal
Brebes
Cirebon
Tjiledug
Kembang
Tg. Bugel
Karimundjawa Is.
Bawean
Sangkapura
Salembu Is.
Little Laut Is.
Masalima Is.
Balabalangan Is. (Paternoster Is.)
Jogjakarta
Purwakarta
Djatinegara
Djatibarong
Tjiamis
Bandjarnegara
Magelang
Surakarta
Pangalengan
Garut
Tjilatjap
Bogor
Bandung
Genteng
Serang
Ceribu Arch.
Sukabumi
Slamat 11,247
Greater Sunda Islands
JAVA SEA
Condore Is.
Spratley I.
Amboina I.
Sin Crowe I.
Itu Aba
Loaita I.
Flat Nanshan
SOUTH CHINA SEA
CAMBODIA
LAOS
VIETNAM
Attopeu
Hat Nhao
Quang Ngai
Kontum
Gia Lai (Pleiku)
Binh Dinh
Bong Son
Qui Nhon
Song Cau
Cheo Reo
Mui Nay
B. Paula
B. Mê Thuot
Nhatrong
Dalat
Budop
Djiring
Phan Rang
Mui Din
Cochin China
Bien Hoa
SAIGON-CHOLON
Baria
Cocong
Mr. Tho
Vung Tau
Phan-Thiet
Lao Bao
Mukdahan
Ubon
Pakse
Khon Kaen
Nakhon Ratchasima
Ban Me Thuot
Chiang Mai
Lampang
Phitsanulok
Nakhon Sawan
Ayutthaya
Bangkok
Chanthaburi
Ban Don
Ranong
Phuket
Pattani
Hat Yai
Kuala Lipis
Kuala Lumpur
Kuantan
Kuala Terengganu
Kota Bharu
Alor Setar
Ipoh
Kuala Kangsar
Kuala Trengganu
Kuala Lipis
Kuantan
Mersing
Johore Bahru
Kuala Selangor
Port Dickson
Malacca
Kuala Pilah
Tanjong Pinang
Pekanbaru
Bukittinggi
Padang
Medan
Sibolga
Pematangsiantar
Tanjungkarang
Palembang
Jambi
Bengkulu
Pangkalpinang
Tanjungpandan
Pontianak
Sintang
Kuching
Miri
Bintulu
Sibu
Sandakan
Tawitawi
Jolo
Zamboanga
Cotabato
Davao
Cebu
Tacloban
Legaspi
Naga
Lucena
Calaguag
Daet
Larap
Sta. Cruz
Laguna de Bay
Tabaco
Masbate
Roxas
Kalibo
Iloilo
Bacolod
San Carlos
Dumaguete
Tanjay
Siquijor
Oslob
Binalbagan
Guimaras
Panay G.
Cadiz
Sibuyan Sea
Visayan Sea
Sulu Sea
Celebes Sea
Sulawesi (Celebes)
Flores
Lesser Sunda
Nusa Tenggara
Sumbawa
Sumba
Sawu Sea
Java Sea
Greater Sunda Islands
Karimata Str.
Strait of Makassar
Strait of Malacca
Palawan
Borneo
Luzon
Mindanao
Negros
Cebu
Bohol
Leyte
Samar
Mindoro
Panay
Sulu Arch.
Sulu Sea
Celebes Sea
Java Sea
Sumba Str.
Lesser Sunda
Nusa Tenggara
Sulawesi (Celebes)
Flores
Sumba (Sandalwood)
Sawu Sea
Waingapu

CENTRAL INDONESIA
Scale 1:12,500,000 (200 miles = 1 inch)
Statute Miles
Kilometres
Principal Railways
International Boundaries
Over 12,000 feet
9000 – 12,000 ,,
6000 – 9000 ,,
4500 – 6000 ,,
3000 – 4500 ,,
1200 – 3000 ,,
600 – 1200 ,,
0 – 600 ,,
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East from Greenwich
P A C I F I C
O C E A N
Caroline Islands
(U.S. Trust Territory)
Palau Islands
Babelthuap
Yap Islands
Mindanao
Mindanao Sea
Cagayan de Oro
Davao
Talaud Is.
Halmahera
Morotai
Ternate
Tidore
Weda B.
Obi Is.
Batjan
Misool
Vogelkop
Waigeo
Dampier Str.
Schouten Is.
Biak
Japen
Japen Str.
Geelvink Bay
Weyland Mt.
Snow Mountains
Nassau Mts.
Mt. Sukarno
Mt. Trikora
Mt. Mandala
Ceram
Buru
Amboina (Ambon)
Banda Sea
Kai Is.
Tanimbar Is.
Aru Is.
Frederik Hendrik I.
C. Palsu (Kaap Valsch)
Merauke
Kefannanu
Alor
Timor
Ombai Str.
Arafura Sea
Flamingo B.
Equator
N.E. NEW GUINEA
P A P U A
Sulu Sea
Celebes Sea
Molucca Sea
Philippine Trench
Sarangani Bay
Tinaca Pt.
Sarangani Is.
Mapia Is. (St. David Is.)
Pulo-Anna
Merir
Helen Atoll
Ulithi Atoll
Ngulu Atoll
Sorol Atoll
Sonsorol Islands
Tabi
Kaoiu Is.
Karakelong
Talaud Is.
Kaburuang
Gt. Sangihe
Sangihe Is.
Karakitang
Siau
Tahulandang
Biaro
Bangka
Manado
Kema
Amurang
L. Tondano
Kotamobagu
Ug. Flesko
Morotai
Halmahera
Tobelo
Ternate
Tidore
Weda B.
Buli B.
Obi Is.
Batjan
Misool
Vogelkop
Waigeo
Schouten Is.
Biak
Japen
Japen Str.
Geelvink Bay
Weyland Mt.
Snow Mountains
Nassau Mts.
Mt. Sukarno
Mt. Trikora
Mt. Mandala
Ceram
Buru
Amboina (Ambon)
Banda Sea
Kai Is.
Tanimbar Is.
Aru Is.
Frederik Hendrik I.
C. Palsu (Kaap Valsch)
Merauke
Kefannanu
Alor
Timor
Ombai Str.
Arafura Sea
Flamingo B.
Equator
N.E. NEW GUINEA
P A P U A
Sulu Sea
Celebes Sea
Molucca Sea
Philippine Trench
Sarangani Bay
Tinaca Pt.
Sarangani Is.
Mapia Is. (St. David Is.)
Pulo-Anna
Merir
Helen Atoll
Ulithi Atoll
Ngulu Atoll
Sorol Atoll
Sonsorol Islands
Tabi
Kaoiu Is.
Karakelong
Talaud Is.
Kaburuang
Gt. Sangihe
Sangihe Is.
Karakitang
Siau
Tahulandang
Biaro
Bangka
Manado
Kema
Amurang
L. Tondano
Kotamobagu
Ug. Flesko
Morotai
Halmahera
Tobelo
Ternate
Tidore
Weda

JAVA
Scale 1:5,000,000 (80 miles = 1 inch)
Statute Miles
Kilometres
Principal Railways
Provincial Boundaries
3,560 Heights in feet
COPYRIGHT. GEORGE PHILIP & SON. LTD
Over 12,000 feet
6000 – 12,000 ,,
3000 – 6000 ,,
1200 – 3000 ,,
600 – 1200 ,,
0 – 600 ,,
East from Greenwich
DJAKARTA
Bandung
Semarang
Surabaya
Surakarta
Jogjakarta
Madura
Bali
Sunda Str.
Madura Str.
Bali Str.
Nusa Kambangan
Pelabuhanratu
Pelabuhan Ratu
Genteng
Tg. Gede
Tg. Bugel
Ug Indramaju
Slamat 11,247
Mt. Temanggung
Sumbing 11,060
Merbabu 10,306
Merapi
Lawu 10,712
Ardjuno 10,952
Tengger Raj
Malang 12,060
Raung 10,932
Bromo 9,050
Mt. Salak
Mt. Gede
Mt. Pangrango
Murjo 5255
Kudus
Madjalengka
Tjirebon
Tegal
Pemalang
Pekalongan
Batang
Kendal
Salatiga
Magelang
Sleman
Klaten
Kediri
Malang
Blitar
Ponorogo
Wonosari
Trenggalek
Patjitan
Tulungagung
Wlingi
Lumadjang
Djember
Probolinggo
Pasuruan
Kraksaan
Situbondo
Bondowoso
Banjuwangi
Denpasar
Bangkalan
Sampang
Pamekasan
Sumenep
Tambuku
Sapudi
Singaradja
Bangil
Penanggungan
Pare
Tjilatjap
Purwokerto
Banjumas
Purwodadi
Wates
Kebumen
Karangdowo
Bantul
Kolagede
Purworedjo
Tjiamis
Tjiandjur
Sukabumi
Pangalengan
Garut
Tasikmalaja
Sindangbarang
Tjikadjang
Singaparna
Pameungpeuk
Tjipatuda
Tjidjulang
Perigi
Bandjar
Balekambang
Malingping
Labuhan
Pandeglang
Rangkasbitung
Serang
Tangerang
Anjer-Lor
Bonten
Bekasi
Krawang
Purwakarta
Subang
Djatibarang
Sumedang
Tjimahi
Padalarang
Tjibadak
Tjikampek
Tjibatu
Tjibarum
Tjiamis
Tjiandjur
Pamanukan
Indramaju
Brebes
Demak
Blora
Kragen
Tuban
Gresik
Sidoardjo
Modjokerto
Kertosono
Madiun
Nganjuk
Ngawi
Wilis
Bodjonegoro
Bengawan Solo
Ug. Pangkah
Pasuruan
Probolinggo
Kraksaan
Situbondo
Bondowoso
Rambipudji
Barung
Jember
Banjuwangi
Bali Str.
Denpasar
Benoa
Singaradja
Bangkalan
Sapudi
Sunda Str.
Panaitan I.
Pulau Tidung
Tjabanbungin
Tandjungpriok
Djatinegara
Pondegelang
Tjibadak
Tjiamis
Tjipatuda
Tjidjulang
Tjikadjang
Tjibatu
Tjibarum
Tjiandjur
Tjimahi
Padalarang
Sumedang
Madjalengka
Indramaju
Tjirebon
Brebes
Tegal
Pemalang
Pekalongan
Batang
Kendal
Semarang
Purwodadi
Tjepu
Kudus
Demak
Blora
Kragen
Tuban
Gresik
Sidoardjo
Modjokerto
Kertosono
Madiun
Nganjuk
Ngawi
Wilis
Bodjonegoro
Bengawan Solo
Ug. Pangkah
Bangkalan
Sampang
Pamekasan
Sumenep
Tambuku
Sapudi
Pasuruan
Probolinggo
Kraksaan
Situbondo
Bondowoso
Rambipudji
Barung
Jember
Banjuwangi
Bali Str.
Denpasar
Benoa
Singaradja
Bangil
Penanggungan
Pare
Kediri
Blitar
Ardjuno 10,952
Tengger Raj
Malang 12,060
Raung 10,932
Semeru
Lumadjang
Posirian
Wlingi
Tulungagung
Trenggalek
Patjitan
Wonosari
Kolagede
Bantul
Sentolo
Wates
Purwodadi
Purworedjo
Kebumen
Karangdowo
Banjarnegoro
Tjilatjap
Purwokerto
Banjumas
Tjiamis
Bandjar
Perigi
Tjipatuda
Tjidjulang
Tjikadjang
Singaparna
Pameungpeuk
Tg. Gede
Sindangbarang
Garut
Tasikmalaja
Pangalengan
Sukabumi
Tjiandjur
Tjibadak
Malingping
Labuhan
Pandeglang
Rangkasbitung
Serang
Tangerang
Anjer-Lor
Bonten
Bekasi
Krawang
Purwakarta
Subang
Djatibarang
Sumedang
Tjimahi
Padalarang
Tjibadak
Tjikampek
Tjibatu
Tjibarum
Tjiamis
Tjiandjur
Pamanukan
Indramaju
Brebes

with specific aspects of government and politics in Indonesia. See the following articles:

ARBITRATION AND CONCILIATION	POLITICAL PARTIES OF INDONESIA
GOVERNMENT OF INDONESIA	SOCIAL SERVICES
HEALTH SERVICES	TAXATION
INTERNATIONAL CO-OPERATION	TRADE UNIONS

Most leading Indonesian political figures have separate articles in the Australasian volumes.

Defence and Law and Order. The legal system of Indonesia consists partly of *codified law* (law in the form of statutes) that the Dutch introduced, and partly of traditional Indonesian *adat* (customary) law (see LEGAL SYSTEM OF INDONESIA). The police in Indonesia are part of the armed services. The four services are described in ARMED SERVICES OF INDONESIA.

Education has greatly advanced since Indonesia gained its independence. The number of people who can read and write increased tenfold in the 20 years following World War II. School is compulsory for all children between the ages of 6 and 10 years. But this law is not strictly enforced. Many children cannot attend school because of lack of schools and teachers in certain areas. Some children do not go to school because they have to help their parents with farm work. Indonesia has about 45,000 schools. Indonesia has 10 major state universities and 12 major private universities. Among the most important are those at Jakarta, Yogyakarta, and Bandung. See EDUCATION IN INDONESIA; LIBRARIES; UNIVERSITIES.

Work. Most Indonesians work in farming or in industries connected with agriculture. The country's islands are excellent places for growing tea and spices, because of their tropical climate and fertile soil. Indonesians have learnt to grow large quantities of food in small areas, because there are so many people to feed. Indonesia is the second largest rubber-producing country in the world (see RUBBER in the main volumes). For details about Indonesian agriculture, see the following articles in the Australasian volumes:

AGRICULTURE	FRUIT GROWING
IRRIGATION	RUBBER PRODUCTION
MEAT PRODUCTION	SUGAR INDUSTRY
PALM OIL INDUSTRY	TEA GROWING
RICE GROWING	TOBACCO GROWING

Fishing is an important industry (see FISHING INDUSTRY). Indonesia produces large amounts of teak, sandalwood, and ebony (see FORESTRY; TIMBER INDUSTRY).

Manufacturing industries were developed extensively in the periods just before and after World War II. See the following articles in the Australasian volumes:

AIRCRAFT INDUSTRY	IRON AND STEEL INDUSTRY
ATOMIC ENERGY	MOTOR INDUSTRY
ELECTRIC POWER	SCIENTIFIC RESEARCH
ENGINEERING INDUSTRY	SHIPBUILDING
FOOD PROCESSING	
GAS INDUSTRY	

Indonesia's islands have deposits of coal, gold, petroleum, silver, and tin. Indonesia ranks among the four largest tin producers in the world, and is the largest producer of petroleum in south-eastern Asia (see PETROLEUM and TIN in the main volumes). See the following articles in the Australasian volumes:

ALUMINIUM INDUSTRY	SILVER MINING
COAL-MINING	TIN MINING
PETROLEUM INDUSTRY	

Indonesia is a leading trading nation. It imports food and a wide range of manufactured goods. It exports petroleum, rubber, copra, tea, palm oil, tobacco, pepper, sugar, and other goods. See TRADE OF INDONESIA.

Industries connected with transport employ many people in Indonesia. Jungles on the islands and wide stretches of sea between islands make transport difficult. See AIR TRANSPORT; RAILWAYS; ROADS AND HIGHWAYS; SHIPPING SERVICES.

Communications are also important. See BROADCASTING; FILM INDUSTRY; PUBLISHING.

Leisure. Indonesians have many sports and pastimes that are played only by Malay peoples (see MALAYS [Sports and Pastimes]). They also play games that are played in many other countries, and compete in international games, such as the Asian Games. See the following articles in the Australasian volumes:

ATHLETICS	GYMNASTICS
BADMINTON	HOCKEY
BASKETBALL	HUNTING
CYCLING	SOCCER

History and Culture

In addition to the HISTORY OF INDONESIA article, with its list of related articles, the Australasian volumes also have *History* sections in each of the articles on the main islands.

The Australasian volumes have the following separate articles relating to the arts and crafts of Indonesia:

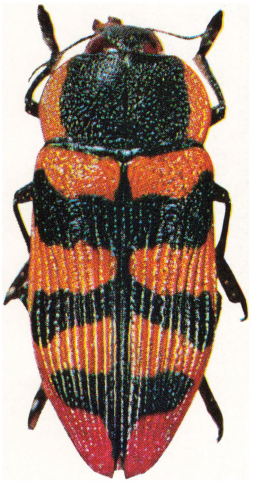
ARCHITECTURE	MUSEUMS AND ART GALLERIES
ARTS OF INDONESIA, MALAYSIA, AND SINGAPORE	MUSIC IN INDONESIA
LITERATURE OF INDONESIA	THEATRE

INGHAM (pop. 5,797) is on Palm Creek, 113 kilometres (70 miles) north of Townsville on the north-eastern coast of Queensland. Farmers in the surrounding Herbert River district grow sugar, tobacco, watermelons, rice, and maize. Pastoralists breed and fatten cattle. Ingham's Victoria Mill is the largest sugar mill in Australia. Other industries in the town include timber milling and veneer production.

INLAND SEA. See HISTORY OF AUSTRALIA (Opening Up the Land [1821-1851]) in this volume.

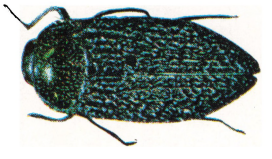
INNISFAIL (pop. 7,475) is about 6 kilometres (4 miles) from the mouth of the Johnstone River on the north-eastern coast of Queensland. It stands at the junction of the north and south branches of the river. The district is one of Queensland's richest sugar-producing regions, with an overseas bulk terminal at Mourilyan Harbour. The district also has tea plantations, commercial stands of natural timbers, and orchards. A bureau of tropical agriculture is established at Innisfail. Farmers in the district also raise dairy and beef cattle.

INSECTS



Botany Bay Diamond Beetle

Jewel Beetles



INSECTS make up about three-quarters of all the known *species* (kinds) of animals in the world. Some members of all the main *orders* (major groups) live in Australia, Indonesia, Malaysia, New Zealand, and Singapore. In general, much greater numbers of both species and individual insects live in tropical than in temperate regions. Tropical regions also contain the most spectacular species.

Many people in Malaysia, Indonesia, and New Guinea eat various insects. In Malaya, people eat dragonflies fried in oil with onions or shrimps. People in some islands of Indonesia eat the grubs of bees, wasps, and beetles, as well as adult beetles. Most of the species that people eat have large deposits of nourishing fats in their bodies.

Some insects affect man directly by attacking him, or by being pests on his crops, stored food, or livestock. A few species are directly dangerous to man. In New Guinea, men have died from the sting of a certain species of wasp. A few people have also died after being attacked by bees. But insects are more important when they spread disease. In tropical Australia, a certain species of mosquito spreads dengue. Other species spread malaria, particularly in the Malay Archipelago. See MOSQUITO in the main volumes.

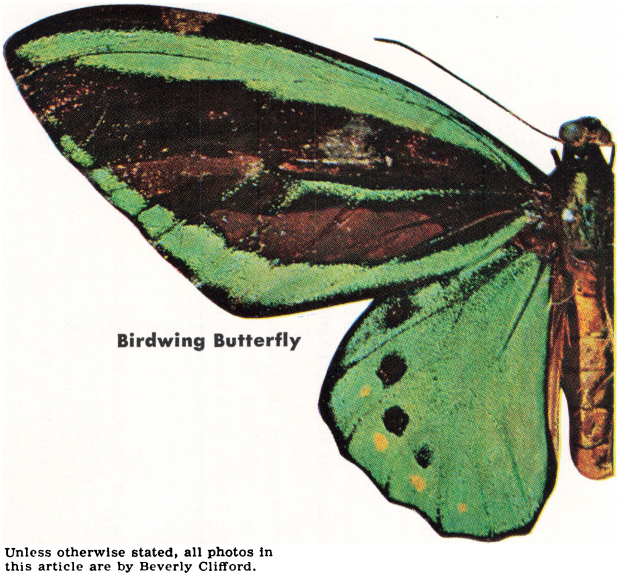
Pests of crops may cause great losses. *Australian plague grasshoppers* sometimes occur in huge swarms that move across the land eating all the vegetation they find. *Termites* feed on wood, and do much damage to fences and wooden buildings, especially in tropical areas. *Mediterranean fruit flies* attack great quantities of fruit each year, making it unfit for sale or use. Other insect pests include the *Argentine ant,* a destructive species that tends to drive away other, harmless species of ants.

Wherever insects are serious pests, men must carry out large-scale spraying programmes. But many insecticides are poisonous to man or to livestock, and farmers must take great care in using them. In many parts of Australia and New Zealand, farmers spread insecticides from low-flying aircraft.

Beetles

The beetles, the order *Coleoptera,* form the biggest group of insects. They are extremely varied in form, but in each species the hard front wings form protective coverings for the hind-wings. *Weevils* are beetles with elongated heads that form long "snouts". The *Botany Bay diamond beetles* of Australia are handsome black weevils with blue specks. They were among the earliest-known Australian insects. The *grubs* (immature stage) of this species live in the roots of wattle trees. The adults feed on wattle leaves.

The *jewel beetles* include some magnificent and beautifully coloured species. Some are up to 7·6 centimetres long. One species, classified as *Stigmodera macularia,* is a yellowish colour, with the thickened fore-wings pitted with black. Its *thorax* (middle part) is a brilliant bronze green. Some people in Indonesia wear jewel beetles as ornaments because of their brilliant colours. Another Indonesian species, the *goliath beetle* of Java, is an extremely large, ground-dwelling beetle. Its head and thorax are extended into long "horns". The beetle is also broad



Birdwing Butterfly

Unless otherwise stated, all photos in this article are by Beverly Clifford.

and heavy, and may be 7·6 centimetres in length.

A strangely shaped beetle that resembles a weevil lives in New Zealand. This *New Zealand weevil* is extremely elongated. Males grow to 6·4 centimetres long. The head is drawn out in front, and the long feelers grow from this extension. The beetles vary from dull dark brown to almost black in colour. Many of the species of *long-horned beetles* are large, and most are dark in colour. They have long, strong feelers. The immature forms burrow into wood. They may take several years to reach maturity, mainly because the wood is not very nourishing.

Beetles live in water as well as on land. Conspicuous black *water beetles* are common in ponds and streams. They rise rapidly to the surface from time to time to replenish their air supply, which they carry under their wings. These beetles have streamlined bodies and legs broadened for swimming.

Butterflies and Moths

Butterflies and moths, which form the order *Lepidoptera,* are the most colourful insects. The magnificent *birdwing butterflies* of northern Australia, New Guinea, and nearby areas are coloured in amazing patterns of glittering gold, green, and black. A large relative of the birdwings, *Schoenbergia chimaera,* has a wing-span of about 20 centimetres. The females, larger than the males, have brown front wings and brown-spotted hind-wings. The males are a brilliant gold tinged with green on the hind-wings. The front wings are irridescent green, marked with jet-black.

As well as having attractive colourings, butterflies and moths have fascinating habits. Many, such as the mainly yellow *catopsilia butterflies,* migrate over long distances each season. The *painted lady butterfly* is fairly common in Australia, and naturalists have found a few in New Zealand. They believe that those in New Zealand must have flown across the Tasman Sea from Australia. The *monarch,* or *wanderer, butterfly* is a large brown and black insect with white spots on the edges of its wings. It once lived only in North America, where it is migratory. But, in the last hundred years, it has spread over great areas as a result of its migration. It is now found in Australia, New Guinea, New Zealand, and many other parts of the world. Naturalists believe that, in warmer countries, the monarch has lost its habit of migration.

The caterpillars of some of the *blues,* the family *Lycaenidae,* give off a sweet substance that is attractive to ants. The ants care for the caterpillars, and, in some species, the relationship is so close that the caterpillars cannot survive without attendant ants.

One of the finest moths in Australia is the *bent-wing swift moth.* A male may have a wing-span of 15 centimetres, and is brown with silver markings and an "eye-spot" near the end of each wing. The female is less brightly marked, but is much larger —up to 23 centimetres in wing-span. The large caterpillars of this moth tunnel into eucalyptus trees. Some Australian Aborigines eat them.

The female of the *vapourer moth* has no wings. Its body is round, and it stays within its cocoon as it develops from caterpillar to adult moth. When it emerges from the cocoon, it simply clings to the outside and emits a scent that is attractive to the males. They can recognize the female's scent over quite a long distance, and fly to the female within a few minutes. The male vapourer moth has mottled brown and yellow wings.

Ants, Bees, and Wasps

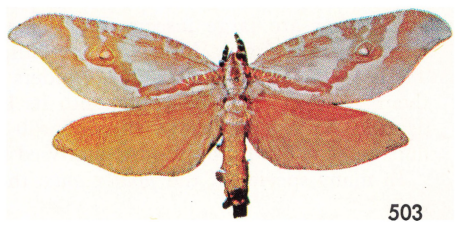
The order *Hymenoptera,* which includes ants, bees, and wasps, has some of the most interesting species of insects. Many of them have fascinating, complex social lives, in which large numbers of individuals live together in colonies.

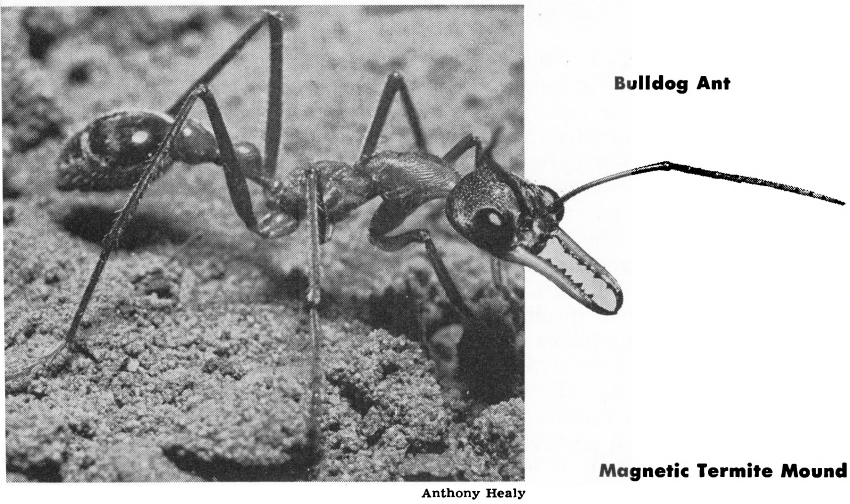
Most species of ants excavate their nests in the ground, but the *green tree ants* of northern Australia, New Guinea, Indonesia, and Malaysia do not. Instead, they bind together the leaves of trees to

Vapourer Moth (female)

Vapourer Moth (male)

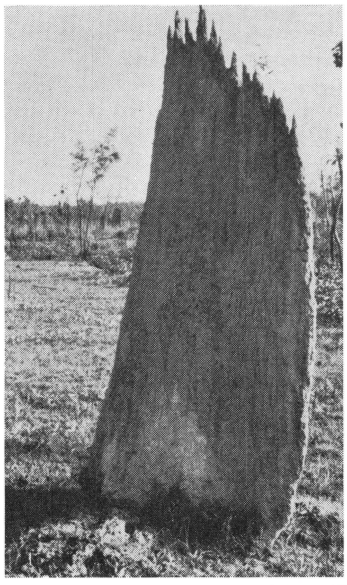
Bent-Wing Swift Moth





Bulldog Ant

Anthony Healy



Magnetic Termite Mound

J. Drinkwater

form chambers that become the galleries of the nest in which the eggs and young develop. The binding material consists of silk spun by the ant grubs. One adult ant holds a grub in its mouth at the edge of one leaf while other adults pull the edge of another leaf towards it. The grub spins the silk from one leaf to the other, binding them together. Green tree ants are only about 6·4 millimetres long, but they are extremely fierce and can inflict painful bites.

The *bulldog ants* live only in Australia and New Caledonia. They are large ants, some species growing up to 2·5 centimetres in length. They have large, powerful jaws with which they can bite, as well as being able to sting. They are active and fierce, but a colony generally contains only a few hundred ants. They forage alone for food. *Sugar ants* are also quite large, and live in small colonies under logs and stones. They are common almost everywhere, and often enter houses in search of food. But, in spite of their size, these ants are harmless and safe to handle without fear of a bite or sting.

Several species of ants have taken to living in houses, where they find moisture in bathrooms and kitchens and sweet foods to eat. They are mainly small, but each colony contains many ants, and old colonies may be extremely large. Each colony contains several kinds of individual—underdeveloped and sterile female "workers" of various sizes, and fully developed and fertile males and females that will eventually leave the nest to found new colonies. The winged males and females generally leave the nest in great swarms during rainy weather.

Wasps and bees are particularly numerous in tropical regions. In New Zealand, men have deliberately introduced *bumble-bees* of several species to ensure the pollination of clover on pastures. The *sand wasps* are large insects that make individual burrows in the soil. Many are metallic coloured. These wasps attack and paralyse spiders by stinging them. A wasp drags its victim into its burrow and deposits an egg on it. When the grub hatches, it finds a ready food supply—the paralysed spider.

In many species of the *flower ants,* the female is

Sand Wasp

Carpenter Bee

much smaller than the male, and has no wings. Like the sand wasps, these wasps are *solitary*—that is, they do not form social colonies. The males carry the females for some time before the females go down into the soil to lay their eggs. The grubs attack and eat other insects in the soil, or they become *parasites* of them (see PARASITE in the main volumes).

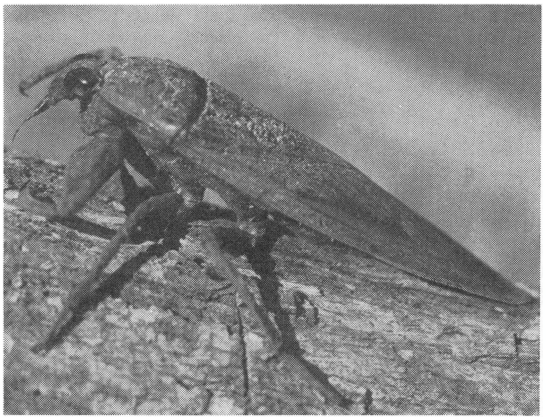
Nests of *mud-dauber wasps* are a common sight in tropical countries. Each female wasp builds a mud nest, consisting of a series of cells, attached to a wall, ceiling, or similar place. Some species mould these cells into beautiful shapes. The wasps fill the cells

with stung and paralysed insects, on which the grubs will feed. They lay an egg in each cell and seal it.

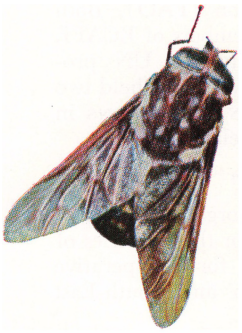
The *social wasps* live in colonies, as do ants, in which the various members have their own jobs. They include the fertile males and females and infertile female "workers". The nests are made of "paper", which the wasps make by chewing wood. Each nest consists of a series of banks of cells. One grub develops in each cell, fed and tended by the adult wasps. It eats insects. When the grub is fully developed, the adults seal it in its cell while it changes into an adult. Most social wasps can sting, and may be quite fierce, particularly when their nest is disturbed.

Most bees, including domesticated *honey-bees,* are social, but not all. The *carpenter bees* occur from Australia to Malaysia, but do not live in New Zealand. The bee bores a hole into wood and divides the tunnel into cells. It places a ball of honey and pollen in each cell and lays an egg on it. The grub feeds on the honey and pollen, eventually emerging as an adult bee. Carpenter bees are large and hairy, generally with yellow bands. They have stings, but are normally docile. Each bee has a small pocket at the base of its *abdomen* (hind segment) in which a few mites live. Biologists do not know exactly what part the mites play in the life of the bee.

Giant Water Bug



Australian News and Information Bureau



March Fly

Floury Miller Cicada

Flies

The true flies belong to the order *Diptera.* They include the *house-fly,* which occurs wherever men live. House-flies breed in insanitary conditions, and, as a result, spread disease. The cost of exterminating house-flies in big cities is enormous. Not all flies are disease carriers, and most species never come into contact with man. But the *march flies,* which are numerous, suck the blood of man and animals. They are quite large, and have large eyes that make up most of their heads. The strange, but harmless, *stalk-eyed flies* have the sides of the heads drawn out into long stalks, the ends of which carry the eyes. They are 6·4 millimetres long, and are black with the hind-part of the body patterned in red or silver. They are common in damp places in the Malay Archipelago.

Bugs

True bugs, which belong to the order *Hemiptera,* all have mouthparts used for piercing and sucking the juices from animals and plants. The *common bedbug,* like the house-fly, lives wherever man does. It is a blood-sucker. The *leaf-hoppers* are small creatures that look like tiny cicadas. They suck the sap of plants. They may do direct damage to plant crops, but their main danger is in transferring plant virus diseases from plant to plant. The *cicadas* are well known for their loud song on hot summer days. Special complicated structures at the base of the abdomen produce the sound. Many species exist, each with a characteristic song. They are extremely abundant in the tropics, and range in size from 13 millimetres to the *Pamponia imperatoria* of Malaysia, which has an 18-centimetre wing-span. These bugs have shiny transparent wings with deep-brown spots.

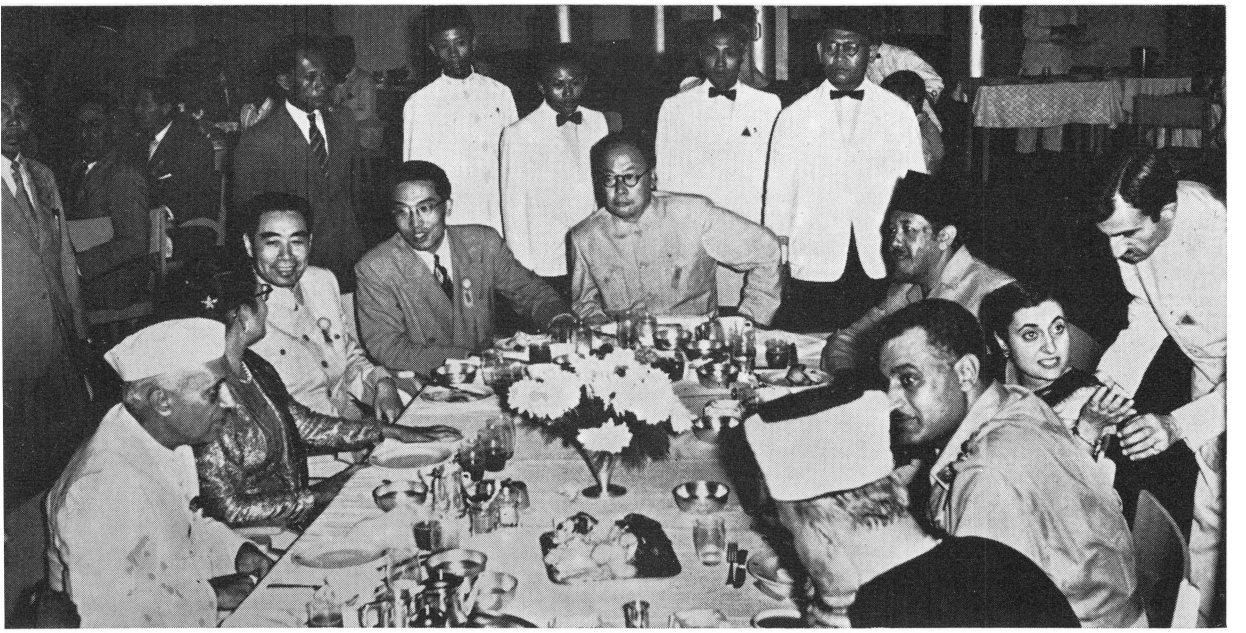
The *assassin bugs* feed mainly on other insects. Many are brightly coloured, with striking patterns of yellow or red. The bug has a strong proboscis that projects downwards and backwards from the front of its head. It grasps the prey with its front legs, and inserts the proboscis into its body.

The *giant water bug,* which is found from Australia to India, is one of the largest of all bugs. It lives in ponds and streams, where it feeds on insects, tadpoles, and small fish. When the ponds dry out, the bugs fly off at night, and may cover long distances.

Other Insects

Termites build remarkable nest mounds. Some are extremely large, and are built by several generations of insects. *Magnetic termites* build mounds up to 3·7 metres high that are narrow in one direction, but broad in the other. The broad sides face east and west, so that the mound as a whole points north and south. Some insects have strange shapes that help them avoid their enemies. Examples in the Australasian region include *leaf insects* and *stick insects.*

See also INSECT, in the main volumes, and its list of related articles; PEST CONTROL in the other Australasian volume.



Antara

The Bandung Conference was held in 1955. Delegates met formally and informally to discuss common problems.

INTERNATIONAL CO-OPERATION. The people of the world are beginning to realize that war cannot be prevented purely by making military alliances and building up stocks of weapons, nor even by discussions between the statesmen of the great powers. Military alliances are necessary. But, as long as two out of every three people are hungry, world peace cannot be achieved. The rich and technically advanced countries of the world are making great efforts to eliminate the causes of poverty. They are giving expert advice and money to developing countries to enable them to make use of their resources and raise their standards of living.

The specialized agencies of the United Nations have led the fight against poverty. Australia and New Zealand have given the UN their full support. They are also making large contributions of their own to assist the developing countries of south-eastern Asia. Through the Colombo Plan, they give help to people of neighbouring countries that amounts to an average of about $A 1.40 a year for every man, woman, and child in Australia and New Zealand. Colombo Plan aid includes food, equipment, and expert advice.

The United Nations

Australia, Malaysia, New Zealand, and Singapore are full members of the United Nations, and take part in its many activities. Singapore became a member in 1965, following its secession from Malaysia. Indonesia used to be a member, but left the organization in 1965, when Malaysia was elected a non-permanent member of the Security Council. But Indonesia rejoined the United Nations after a change of policy in 1966.

Australia and New Zealand give generous support to the various specialized agencies of the UN. They are particularly interested in helping the countries of south-eastern Asia, which are relatively close neighbours. Australia contributes about $A 20 million each year in international aid through the UN and other international organizations, in addition to its contributions to the Colombo Plan.

All the Australasian countries are particularly interested in the work of the Economic and Social Council. One of its major organs, the Economic Commission for Asia and the Far East (ECAFE), studies the economy of the whole area. It examines the industry and trade of Asian countries and points out ways in which prosperous countries can best co-operate with developing countries. The prosperous countries may then give help either independently or through the UN specialized agencies, such as the Food and Agriculture Organization (FAO). Both Australia and New Zealand are members of ECAFE and have contributed regularly to the UN programme of technical assistance. ECAFE has held two of its sessions in Australia. See UNITED NATIONS in the main volumes and its list of related articles.

The Colombo Plan

Of the many international aid organizations outside the UN, the most important for the countries of Australasia is the Colombo Plan for Co-operative Economic Development in South and South-East Asia.

The countries of southern and south-eastern Asia are rich in natural resources, but do not have the wealth and technical knowledge to develop these resources. In 1950, Australia's foreign minister, Percy Spender, met the foreign ministers of other Commonwealth countries at Colombo in Ceylon. He suggested that the richer members of the group

should agree to help the poorer members with loans and grants, and above all by sharing their technical knowledge. His proposal became known as the *Colombo Plan.*

Each member country of the Colombo Plan agrees to send a representative to a meeting each year. At this meeting, the representatives discuss the problems of the region as a whole, as well as those of individual members. Each country draws up its own development plan, and the Colombo Plan is the sum of all these smaller plans.

The plan itself has no aid fund. One member gives help to another directly. All help is given without political conditions. One country can help another under the Colombo Plan in three ways. It can give capital aid, technical assistance, or technical training and education.

Capital aid is the gift or loan of money for important development works, or of machinery, equipment, or consumer goods. Under technical assistance schemes, advanced countries lend developing countries to services of experts to help with important projects. Technical training is, in the long run, perhaps the most important form of aid. Countries giving this kind of aid send instructors to teach young people special skills and trades. They also provide teachers for schools, universities, and hospitals. And they accept Asian students in their own educational institutions, many of them under Colombo Plan scholarships.

At first, only Commonwealth countries joined in the Colombo Plan. But other countries soon realized the advantages of the scheme. All the non-communist countries in the area joined. The United States and Japan, both technically advanced countries, became members. By the mid-1960s, 22 countries were associated with the plan. See COLOMBO PLAN in the main volumes; SPENDER, SIR PERCY, in the other Australasian volume.

Australia has spent a total of about $A 120 million on Colombo Plan projects. It has contributed large amounts of equipment for development projects and has given various commodities, such as wheat, flour, fertilizer, coal, and copper. Australia has also awarded more than 5,000 scholarships to enable people to study in Australia. It provides a scheme of correspondence courses. Burma, Ceylon, India, Indonesia, Malaysia, the Philippines, and Thailand have joined this scheme. In 1963, the Colombo Plan English Teaching Centre was opened in Sydney. It provides courses in English for students nominated by their governments. Australia has also provided more than 500 experts and 100 advisers on various assignments.

Australia has assisted many Asian countries, including Cambodia, Ceylon, Laos, Nepal, and South Vietnam. Burma has received irrigation pumps, trucks, and road-making equipment. Aid to India has included consignments of food and chemicals, diesel rail-cars and railway wagons, and radio and electrical equipment. Pakistan has received wheat, telecommunications equipment, diesel locomotives, and tractors. Australia's aid to Thailand has included ambulances, railway rolling stock, and road-building equipment. Australia has promised more than $A 22 million towards the Indus basin development fund.

Indonesia has received considerable capital and technical aid under the Colombo Plan. After Indonesia withdrew from the UN in 1965, President Sukarno said that he did not want any more help from western countries. Projects already begun were continued, and Indonesia rejoined the UN in 1966.

Many countries have given assistance to Indonesia. Australia has spent over $A 12 million on various projects. It is building a network of radio stations to improve communications between Indonesia's islands. Previous large gifts included 250 diesel buses for Jakarta, worth more than $A 3 million; tractors, trucks, and road-building equipment, worth more than $A 1,600,000; and equipment for the centre for cripples at Surakarta. More than 50 experts from Australia have assisted the Indonesians on various projects. Hundreds of Indonesian students attend Australian universities, technical colleges, and other institutions.

The United States has also provided large amounts of aid. It made available credits for cement and fertilizer plants, electric power development, railway improvements, road construction equipment, dredging equipment, aircraft, and marine engines. It also provided development loans for harbour improvements and the production of motor-cars. The United States has helped to develop agriculture and fisheries, rural electrification, and civil aviation, and has provided money for a by-pass road for Jakarta.

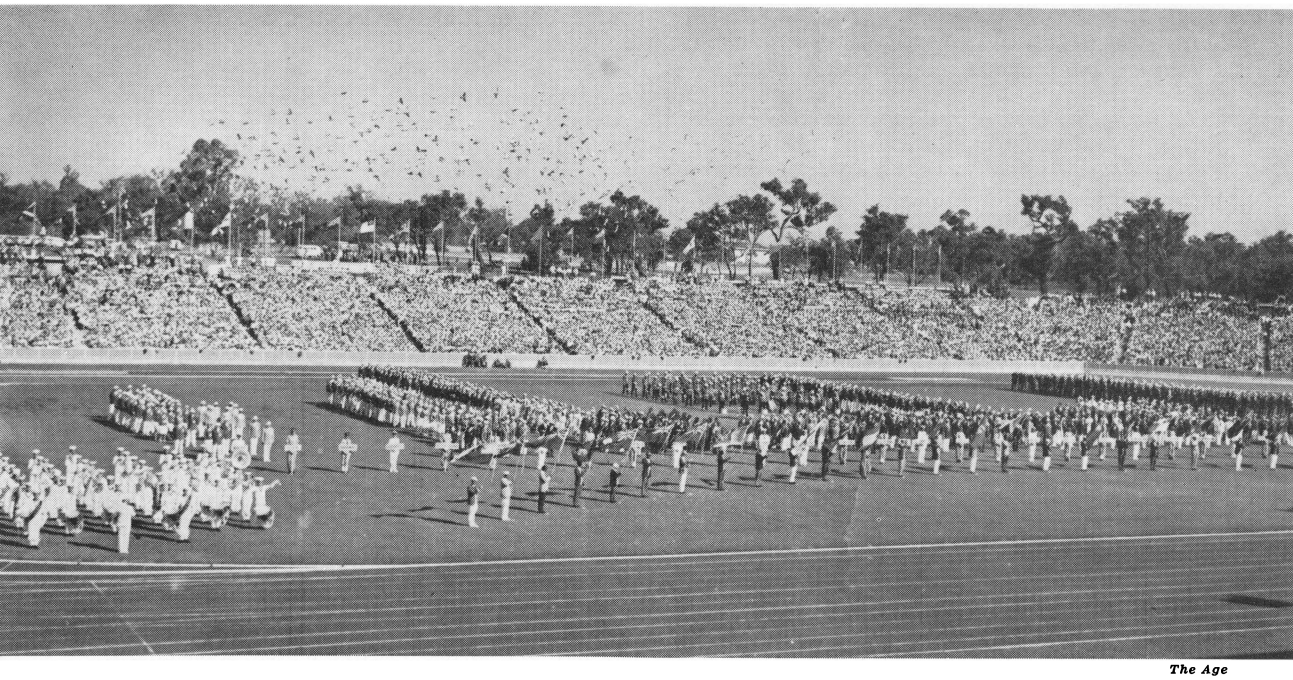
Japan has made available credits for the supply of ships, dockyard equipment, and building materials. Canada has sent shipments of flour. Britain has provided equipment and books for the Science Teachers' College.

New Zealand has spent more than $NZ 2 million in aid to Indonesia. It gave $NZ 458,000 for a trade training centre at Malang, $NZ 360,000 for a faculty of agriculture in northern Sumatra, and $NZ 210,000 for an asbestos and cement factory at Surabaya. New Zealand has made many other gifts to Indonesia, and, like Australia, has provided experts and welcomed students.

Malaysia and Singapore have also received large amounts of aid from the Colombo Plan countries. Britain has provided much of the capital aid. When the federation of Malaysia was set up in 1963, Britain promised £2 million a year for five years to help to finance the development programmes of Sabah and Sarawak. Britain also promised gifts and loans to Singapore totalling almost £6 million.

Britain has made grants for many specific schemes. These schemes include a teacher training college and a technical college in Malaya; hospitals, drainage and irrigation works, road construction, and schools in Sabah; a broadcasting service, schools, a soils laboratory, and port development in Sarawak; and the university and a health centre in Singapore. In 1960, Britain gave more than £500,000 towards improvements at Singapore airport.

Australia has also given substantial help to Malaysia. It has provided diesel cars and other railway



The Age

The Commonwealth Games were held at Perth in 1962. Athletes also compete in the Asian Games and GANEFO.

rolling stock worth almost $A 1 million, road-building equipment, and books and equipment for universities, schools, and community centres. Almost 300 experts have worked on Colombo Plan projects. Many Malaysian students have studied in Australia, and Australian teachers have conducted about 2,700 correspondence courses for Malaysians.

New Zealand has spent well over $NZ 3 million to provide assistance for Malaysia and Singapore. It gave $NZ 500,000 for a faculty of agriculture at Kuala Lumpur, and $NZ 120,000 for a civil service training centre. It has provided broadcasting and surveying equipment for Sabah and an industrial research unit for Singapore. In addition, New Zealand has sent out many experts and welcomed many Malaysian students.

Canada has provided Malaysia with coastal fisheries equipment and has equipped technical schools. It has also carried out an aerial survey. The United States has made development loans available for a new deep-water port in the North Klang Strait, and for the construction of roads and bridges.

New Zealand has spent about $NZ 28 million in capital aid and technical assistance to the Colombo Plan countries. It has concentrated on technical assistance. It has sent more than 200 experts overseas. It has also welcomed about 2,000 students. Most of these students attend universities to take degrees or to do postgraduate work.

Apart from its gifts to Indonesia and Malaysia, New Zealand has made large contributions to assist other countries in the Colombo Plan. In Burma, it contributed towards the Pazundaung bridge, trade training schools, and a drainage scheme at Mandalay. It has given India more than £2,500,000 for such schemes as the All-India Institute of Medical Sciences, milk programmes in Bombay, Delhi, and Madras, and a dairy research institute. In Pakistan, it has contributed towards two sugar mills, a cement factory, an irrigation project, and a livestock farm. New Zealand has also given assistance to Brunei, Cambodia, Ceylon, Laos, Nepal, the Philippines, South Vietnam, and Thailand.

Other Aid Programmes

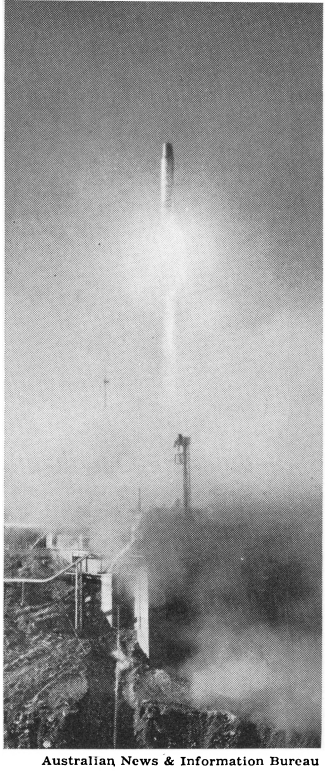
Australia and New Zealand channel most of their aid to developing countries either through the Colombo Plan or through the United Nations and its agencies. Both also participate in Commonwealth aid schemes, such as the Commonwealth Scholarship and Fellowship Plan.

Private organizations also do valuable work in south-eastern Asia. In the early 1950s, the Volunteer Graduate Scheme was instituted. Under this scheme, Australian and New Zealand graduates work in Indonesia for two years. They live like Indonesians in Indonesian homes and hostels, receive Indonesian rates of pay, and work wherever the Indonesian government thinks they will be of most use. Most of the volunteer graduates are doctors, agriculturists, or educationists.

The organizers of this scheme believe that people who work together to a common end learn understanding and tolerance of one another. In this way, they help to further international co-operation and make world peace a reality.

Afro-Asian Conferences

The Bandung Conference. In 1955, 29 African and Asian countries held the first Afro-Asian conference at Bandung, in Indonesia. They met to discuss

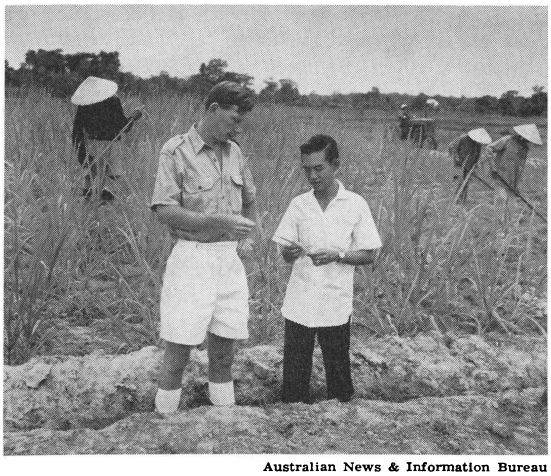


Australian News & Information Bureau

ELDO, the European Launcher Development Organization, tried unsuccessfully to put a satellite into orbit in the 1960s. ELDO comprised Australia and several European countries. Blue Streak, the first stage of the rocket, was test-launched at the Woomera range in 1964.

Garuda Book Service

Private Firms make gifts to developing countries. Some Australian firms have given equipment to Indonesia and have provided training for technicians.



Australian News & Information Bureau

Agricultural Experts, sent by Australia and New Zealand under the Colombo Plan, give advice and help to farmers in south-eastern Asia.

problems common to them all and to decide on their attitude to pressing world issues. The government of Indonesia, joined by Burma, Ceylon, India, and Pakistan, initiated this international gathering.

Representatives from 24 additional countries responded to the invitation: Afghanistan, Cambodia, China, Egypt, Ethiopia, Ghana, Iran, Iraq, Japan, Jordan, Laos, Lebanon, Liberia, Libya, Nepal, North Vietnam, the Philippines, Saudi Arabia, South Vietnam, Sudan, Syria, Thailand, Turkey, and Yemen. The representatives discussed economic and cultural co-operation, human rights and self-determination, the problems of dependent peoples, ways of promoting world peace and international co-operation, and other pressing international questions.

The conference issued a declaration known as the *Ten Principles of Bandung*. Among other clauses, the signatories agreed not to interfere in the internal affairs of other countries, and not to make collective defence arrangements that would be to the benefit of any of the great powers. They also agreed to settle all international disputes by peaceful means.

Other Conferences. Since Bandung, a number of non-governmental conferences have been held in various cities in the two continents. For example, in 1963, Indonesia invited journalists to attend the Afro-Asian Journalist Conference. The conference agreed to establish the Afro-Asian Journalist Association with headquarters in Jakarta. Journalists from Malaya attended this conference.

In 1965, the Afro-Asian Islamic Conference was held at Bandung. The delegates elected President Sukarno as "champion of Islam and national freedom". They also established a permanent secretariat headed by an Indonesian secretary-general.

Afro-Asian countries planned a second major conference at Algiers in June, 1965, 10 years after

Military Co-operation is close between Australia and New Zealand. New Zealand cadets train at the Royal Military College, Duntroon.

Australian Army Public Relations

Bandung. Just before the conference was to open, the preparatory committee postponed it. Algerian army leaders had overthrown the President of Algeria, Ben Bella, and Algiers was in confusion. The conference was again postponed in November. The preparatory committee could not agree on whether or not to invite Malaysia, Russia, and Singapore, and China refused to attend.

New Emerging Forces. President Sukarno first used the term *new emerging forces* in 1962. This term was meant to define the nationalist movements of countries in Africa and Asia that had won their freedom from colonialism and the right to play an independent part in the world's affairs. The term also included nationalist movements in colonial and semi-colonial countries that were still striving to achieve this goal. According to Sukarno, the socialist countries of eastern Europe and all workers' movements opposed to the *old established forces* of capitalism also represented new emerging forces.

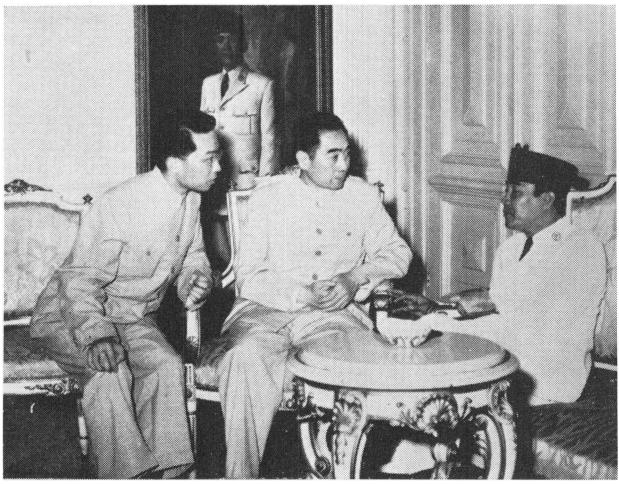
Sukarno argued that injustice, and particularly colonialism, can be overcome only if capitalism is eliminated. The new emerging forces could achieve this aim only by uniting in all fields of activity.

Sukarno considered that the Olympic Games had become a political instrument of the countries representing the old established forces. For this reason, he initiated the first Games of the New Emerging Forces (GANEFO). Almost 3,000 athletes from 48 countries of Africa, Asia, Europe, and Latin America competed at Jakarta in 1963. Immediately after the games, the first congress of GANEFO established the GANEFO Federation, with Jakarta as its headquarters.

Indonesia called for a conference of representatives of the new emerging forces (CONEFO) to meet at Jakarta in 1966. Sukarno regarded the establishment of CONEFO as of great importance because of the apparent weakness of the UN. But he denied trying to set up a rival organization.

Asian Leaders meet regularly. During the Bandung Conference, President Sukarno held talks with Chou En-lai of China.

Antara



Regional Alliances

Australia, Malaysia, New Zealand, and Singapore have similar defence problems. Compared with most other countries in Asia, they have small populations. Only Australia has any substantial heavy industry, but even these resources cannot provide the weapons and equipment needed for defence. None of these countries is strong enough to defend itself.

Malaysia and Singapore, which are both newly

independent countries, have a number of other problems. Their governments are striving to raise living standards and to create a sense of nationhood among people of mixed races and cultures. Singapore's defence forces consist only of small army units intended mainly to help the police to overcome internal trouble. Malaysia called for help from Australia, Britain, Canada, and New Zealand to expand its forces to meet the pressure being placed upon it by Indonesia. This pressure, which the Indonesians called *confrontation,* was the expression of Indonesian opposition to the creation of Malaysia.

Malaysia and Singapore rely heavily on their allies, particularly Britain, to provide their defence. But they have not joined any regional defensive groupings because, as members of the Afro-Asian group of countries, they dislike military alliances. Under special defensive agreements made in 1957 and 1963, British and other Commonwealth forces continued to use the military bases that Britain built in Singapore and Malaysia. In return, Britain agreed to assist in the external defence of Malaysia.

Australia and New Zealand have no similar formal obligations. But they have associated themselves with Britain in its agreements with Malaysia. In 1964 and 1965, they sent additional forces to assist Malaysia in resisting Indonesian pressure.

Australia and New Zealand have always favoured collective security. Before World War II, they had inadequate armed forces, and relied on the protection of the British navy. After the outbreak of the war in the Pacific and the sweep of the Japanese as far south as New Guinea, they realized that neither country could hope to defend itself without British or American protection.

As a result, Australia and New Zealand have established close defence links with other countries. They have given full support to the United Nations in its efforts to keep peace throughout the world. Both countries sent forces to fight for the United Nations in Korea from 1950 to 1953.

The United Nations, ideally, forms a world-wide system of security. But Australia and New Zealand felt a strong need to join smaller, regional alliances in the Pacific area and south-eastern Asia.

The first such alliance was *ANZAM,* named after the general region it covered—Australia, New Zealand, and Malaya. ANZAM is not based on a treaty. It grew slowly in the late 1940s and early 1950s through a series of understandings on defence reached by Australia, New Zealand, and Britain. An ANZAM Defence Committee and other military planning committees are based in Canberra. The main purpose of the ANZAM arrangements is to coordinate the defence plans and forces of the three countries concerned if they become involved in war in south-eastern Asia or in the Pacific. Since 1955, the three ANZAM partners have stationed forces in Malaysia and Singapore. These forces are known as the *Commonwealth Far East Strategic Reserve.*

In 1951, Australia and New Zealand joined the United States in a security treaty known as *ANZUS,* from the countries' initials. Each country recognized that an armed attack on any one of them in the Pacific area would be dangerous to all of them, and agreed to take action to meet this danger. The three countries agreed to do all they could to build up their defensive strength.

In 1954, Australia and New Zealand joined six other nations—Britain, France, Pakistan, the Philippines, Thailand, and the United States—in the Manila Treaty. This treaty is usually known as *SEATO,* because it resulted in the South East Asia Treaty Organization, based at Bangkok, in Thailand. The countries that are members of SEATO have obligations similar to those imposed under the ANZUS treaty. But SEATO extends as far west as Pakistan. See SOUTHEAST ASIA TREATY ORGANIZATION (SEATO) in the main volumes.

As part of their responsibilities under the SEATO treaty, Australia and New Zealand have sent forces to Thailand in times of danger, and have given economic aid and other help to the Asian members of SEATO. For example, Australian and New Zealand engineers worked on a British-Australian-New Zealand project of building an airfield in north-eastern Thailand.

Indonesia is not a member of any regional defence arrangement, and has strongly opposed the continued presence of Commonwealth bases in Malaysia and Singapore. Indonesia has opposed the whole idea that western countries, such as Britain and the United States, should continue to play any part in the defence of south-eastern Asia. Indonesia withdrew from the United Nations in 1965 as part of its policy of opposing Malaysia, but rejoined in 1966. Its foreign and defence policies are of great importance to the other countries of Australasia and south-eastern Asia, because it is the largest and most powerful nation in the area.

Aids to Learning

Related Articles. See INTERNATIONAL RELATIONS in the main volumes and its list of related articles.

Outline of this article is as follows:

I. **The United Nations**
II. **The Colombo Plan**
   A. Australia
   B. Indonesia
   C. Malaysia and Singapore
   D. New Zealand
III. **Other Aid Programmes**
IV. **Afro-Asian Conferences**
   A. The Bandung Conference
   B. Other Conferences
   C. New Emerging Forces
V. **Regional Alliances**

Books to Read about this topic include:

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New Zealand National Publicity

Invercargill, the southernmost city in New Zealand, has wide streets in its main business area. It has many fine parks and gardens. Invercargill is the main city of the province of Southland.

INVERCARGILL (pop. 47,098) is the main city of Southland in the South Island of New Zealand. Invercargill is 27 kilometres (17 miles) north of Bluff, Southland's chief port, and 219 kilometres (136 miles) south of Dunedin.

Invercargill is built on flat land. To the visitor, its most noticeable feature is its wide streets. The city is the centre of a large farming area. It is a prosperous city, and is growing rapidly. Until 1970, its industry was based on primary production. Then a large aluminium smelter was established at Tiwai Point, just south of the city. It draws its power from the Manapouri hydro-electric scheme. The city is the south terminal of the South Island main trunk railway line and of trunk services operated by the National Airways Corporation. Invercargill is also on the main highway that runs the length of the South Island.

Invercargill has one daily newspaper, the *Southland Times,* which is published morning and evening, and two radio stations. The city has a museum and an art gallery.

In Invercargill, a large amount of land is devoted to public gardens. The Otepuni Stream flows through the southern part of the city. It has gardens along its banks. The largest park, Queens Park, includes a golf course. Golfers can also play on three other golf courses. The city has a racecourse and many sports grounds and arenas. In the northern part of the city is an area of native bush known to Invercargill people as Thomson's Bush.

In 1855, James Kelly, a former sealer, and his wife became the first settlers on the site of Invercargill. In 1857, the town was named after William Walter Cargill, the superintendent of Otago. J. Turnbull Thomson, the first surveyor of Otago, planned the town and it was surveyed by George Hartley in 1859. Invercargill became a borough in 1871 and a city in 1930.

INVERELL (pop. 9,700) is a town in the New England tableland of northern New South Wales. Farmers in the district produce maize, wheat, tobacco, lucerne, fruit, vegetable oils, grain sorghum, and barley. They keep sheep, cattle, and fat lambs. Local secondary industries include sawmills, brick factories, foundry and engineering works, an abattoir, a cordial factory, and a milk processing plant, as well as mines yielding tin, sapphires, and coal. Coal at Ashford is used to generate power for the North West County Council. There are commercial deposits of bauxite at Oakwood. An ore lode at Howell contains lead, zinc, copper, tin, and arsenic. Tourist facilities include trout fishing and sporting activities.

INVESTIGATOR was the ship in which the British navigator Matthew Flinders sailed around Australia in 1801, 1802, and 1803, to explore the coastline (see FLINDERS, MATTHEW, in this volume). In 1801, the British Admiralty gave him command of *Investigator,* a 339-tonne (333-ton) brig, and sent him to find out whether a strait separated the eastern part of Australia from the western part. During the last part of his voyage, he found that his ship was in dangerous condition. In 1803, when it reached Sydney, it was declared unfit to sail farther.

IPOH (pop. 125,855) is the capital of the state of Perak, in Malaysia. It is the third largest city in Malaysia, after Kuala Lumpur and Georgetown (Penang), and is the centre of one of the richest tin-producing regions in the world. The city is situated on the upper reaches of the Kinta River. For location, see MALAYSIA (colour map) in the other Australasian volume.

After Kuala Lumpur, Ipoh is the largest centre on the main western coast highway and railway routes. They run northwards from Singapore and Johore Bahru to the border town of Padang Besar, in the state of Perlis, and on into Thailand.

Ipoh is an important light-industrial and commer-

cial centre. But the prosperity of the city is based chiefly on the earnings from the nearby tin mines. The dredges that mine tin in the area around Ipoh are owned chiefly by Australian, British, and French companies.

Most of the people of Ipoh are descendants of Chinese and Indians who migrated to Perak in the late 1800s to work in the tin mines.

Ipoh developed as a settlement from the tin-mining camps established in the Kinta Valley in the 1880s by Chinese miners. Since the late 1950s, a prosperous iron-mining industry has developed in the Ipoh area.

IPSWICH (pop. 61,514) is an industrial centre in south-eastern Queensland. It stands on the Bremer River, more than 32 kilometres (20 miles) south-west of Brisbane, in the centre of a rich coal-mining area. Ipswich is Queensland's oldest provincial city. It is the state's most important industrial area outside Brisbane. For location, see QUEENSLAND (map) in the other Australasian volume.

Ipswich has a subtropical climate. In summer, it has an average maximum temperature of about 32° C (90° F). In winter, it has an average maximum temperature of about 21° C (70° F) and an average minimum temperature of about 7° C (44° F). It has an average rainfall of about 737 millimetres (29 inches). More than half of the rainfall occurs during summer.

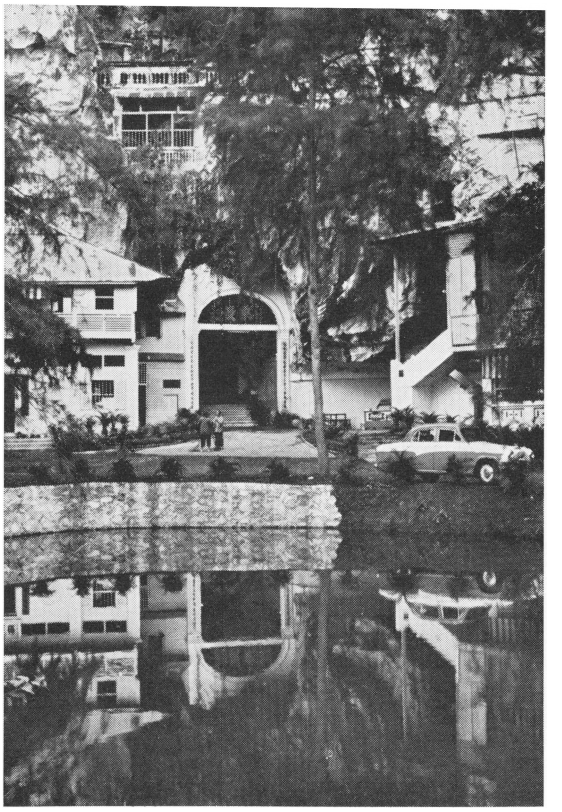
Ipswich is a busy industrial city. It has Queensland's largest railway workshops. Industries in the area include a large, modern woolen mill, a veneer and plywood mill, ceramic pipe manufacturers, iron foundries, furniture manufacturers, steel fabricating plants, a number of heavy engineering workshops, and factories producing clothing, fertilizer, hardboard, and malt.

The Southern Electric Authority of Queensland operates the largest thermal electrical generating station in the state at Swanback, outside Ipswich. Coal for the station comes from coal fields in the area.

The area west and north-west of Ipswich—particularly the Lockyer, Fassifern, and Brisbane valleys—is rich in agricultural and dairy produce.

The explorer John Oxley discovered the river on which Ipswich now stands while surveying the Brisbane river in 1824. He named it Bremer's Creek after Captain James Gordon Bremer, who was then in charge of H.M.S. *Tamar*. The commandant of Moreton Bay Penal Settlement, Captain Patrick Logan, explored the creek in 1826 and discovered some limestone hills. In 1827, he sent an overseer and convicts to quarry limestone and erect a lime-burning kiln. The burnt lime was sent by boat from Limestone Station to Brisbane, where it was used in the construction of buildings. Coal was also discovered in 1827.

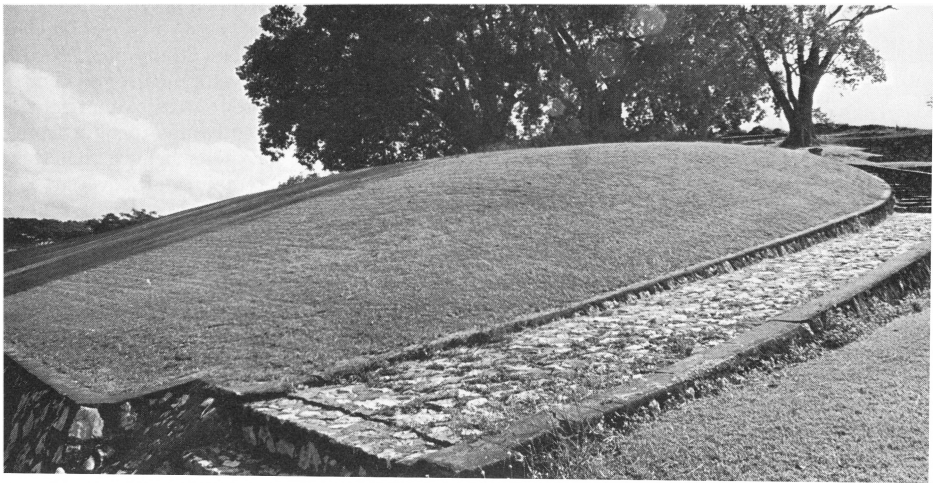
In 1843, Governor Gipps changed the name of the settlement from Limestone to Ipswich, after the town in England. There is no record of the governor's reason for choosing the name Ipswich. People continued to refer to the town unofficially as Limestone for many years afterwards.



Qantas

Ipoh has such attractions as the Sam Poh Tong Temple, a fine Buddhist temple built into the limestone cliffs.

Peter Steinmuller



Limestone Hill not far from the centre of the city of Ipswich was once a limestone quarry. Ipswich was originally known as Limestone. A memorial on the hill marks the spot where the explorer Alan Cunningham once camped.

Antara

Dancers of Irian Jaya use primitive drums and may wear plumes of the bird of paradise.

IRIAN JAYA is the most easterly province of Indonesia. It used to be called *Irian Barat* (West Irian). It consists mainly of the western half of the island of New Guinea, the largest and least developed part of the Indonesian archipelago. Irian Jaya has an area of 421,950 square kilometres (162,915 square miles) —a fifth of Indonesia's total area. The population of Irian Jaya is 758,400. This figure includes an estimated 700,000 people on the main island of New Guinea itself. Jungle covers nine-tenths of Irian Jaya, and vast areas of it remain unexplored. Irian Jaya was the last part of Indonesia to be ruled by The Netherlands. After a long dispute, Indonesia gained control over the province on May 1, 1963.

The Land

Location. In addition to the western half of the island of New Guinea, Irian Jaya province includes various neighbouring islands, such as Biak, Japen, and the Raja Ampat islands. Irian Jaya covers nearly half of the island of New Guinea. For most of its length, the frontier between Irian Jaya and Papua New Guinea follows the line of longitude 151° east of Greenwich. The Fly River forms part of the frontier.

For location, see INDONESIA (colour maps) in the other Australian volume.

Land Features. A mountainous neck of land only about 64 kilometres (40 miles) wide divides the *Cenderawasih* (bird of paradise) peninsula from the main part of Irian Jaya. The Dutch called the Cenderawasih peninsula *Vogelkop* (bird's head) because of its shape. The towering snow-capped Snow Mountains divide the main, eastern part of Irian Jaya. The mountains extend from east to west. They include the highest peak in Indonesia, Jaya Peak (5,030 metres or 16,503 feet). It was formerly known as Mt. Carstensz and then Mt. Sukarno. Other high peaks include Trikora (4,755 metres or 15,600 feet), to the east, Tamrau (3,000 metres or 9,843 feet), and Arfak (2,939 metres or 9,643 feet) on the Cenderawasih peninsula.

Most of the coastal regions of Irian Jaya are low-lying. Thick mangrove swamps fringe much of the western and southern coasts and river estuaries. Marshes extend miles inland. The main rivers of the province are the Digul in the south and the Mamberamo in the north. The mouth of the Digul forms a marshy delta in which lies the island of Dolok (formerly Frederik Hendrik). Many small rivers, such as the Lorentz, rise in the Snow Mountains. Most of them flow southwards through marshes to the Arafura Sea.

Climate. Irian Jaya lies just south of the Equator, and, as a result, the low coastal regions have a hot, tropical climate. The mountains are cooler. Rainfall is generally extremely heavy, especially in the mountainous regions. There, some places receive 6,350 millimetres (250 inches) of rain a year. But the most southerly part of the province is surprisingly dry for a tropical region.

Animal Life of Irian Jaya includes many species similar to those of Australia. For this reason, experts believe that New Guinea was once joined to Australia. Characteristic wild-life of Irian Jaya includes horny anteaters, emus, crocodiles, and marsupials such as wallabies. It also includes the birds of paradise for which New Guinea is famous.

The Life of the People

Irian Jaya is the most sparsely populated part of Indonesia. Most of the people of Irian Jaya are dark-skinned people called Papuans. Indonesians call them *Irianese*. The people belong to a great number of tribes. Many of these tribes have reached a stage of development equivalent to that of men living in the Stone Age. Members of these tribes have only recently met people from outside their own district. Experts believe that there are many tribes that still remain undiscovered. Irian Jaya has more than 200 languages. Fewer than 150,000 people speak any one of them. People use the Indonesian language for inter-communication and administration.

Most inhabitants of the undeveloped interior regions follow local religions, worshipping spirits represented by objects in the natural world. But Christian missionaries have converted many people, and

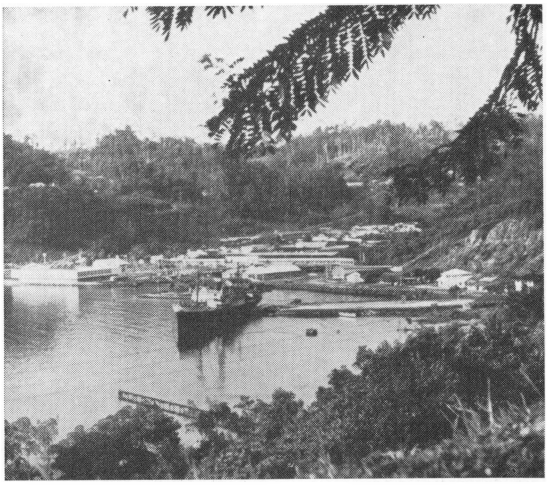
FACTS IN BRIEF

Provincial Capital: Jayapura.

Area: 421,950 square kilometres (162,915 square miles.)

Population: 758,400.

Chief Products: *Foods and Spices*, cattle, fish, mace, nutmeg, pepper, pigs, sago, sweet potatoes. *Minerals*, coal, cobalt, gold, iron, nickel, petroleum. *Other Products*, copra, crocodile skins, resin and copal, timber.



Ron Witton

Jayapura, in the north-east of Irian Jaya, is the main port and administrative centre of the province.

about 300,000 are now Christians. They are mainly Protestants in the north and Roman Catholics in the south. About 10,000 Muslims also live in Irian Jaya. They include many government officials from other parts of Indonesia and Papuans of the Cenderawasih peninsula. The people of Irian Jaya have not developed any advanced arts, but those in the interior make tribal masks, shields, and spears. They make head-dresses from bird-of-paradise plumes.

The Work of the People

In the Country. Most of Irian Jaya's soil is not very fertile, and the less advanced peoples of the interior do not farm the land intensively. The people do most farming in the coastal regions near the towns. The main food crops are sago and sweet potatoes, but the government is encouraging rice growing. Most of the meat comes from pigs, both domestic and wild.

The coastal Papuans are skilful sailors. Many people in coastal villages live in houses built over the water on stilts, and catch fish for food. Some villagers trade in such produce as copra, crocodile skins, resin and copal, pepper, nutmeg, mace, and gold. They find the gold in the rivers of the interior. The Raja Ampat islands have large copra estates.

The Indonesian government plans to expand Irian Jaya's rural industries, including forestry, cattle raising, and the production of coffee and cocoa. It is also developing mining industries in the Cenderawasih peninsula.

In the Towns. The main towns of Irian Jaya lie near the coast. The largest town and the administrative centre of the province is Jayapura. It is in the extreme north-east. It was formerly called *Hollandia,* then *Kotabaru,* and then *Sukarnapura.* It has a fine harbour, and is the province's main trading centre. One of the few roads leading inland in Irian Jaya connects Jayapura with its airport at Sentani, about 16 kilometres (10 miles) to the south-west. Other towns include Sorong and Manokwari.

History

Traders from China and Nusa Tenggara were among the first visitors to New Guinea. In the 1500s and 1600s, Portuguese and Spanish navigators visited the island. At that time, the king of Tidore ruled the coastal regions of western New Guinea. The Dutch East India Company claimed control of the western part in the 1600s, but The Netherlands officially claimed the territory only in 1828. The British and Dutch governments agreed to a frontier dividing the island in 1884. Dutch warships occasionally visited the territory, but Europeans first settled there only in the early 1900s.

People of the Coastal Areas of Irian Jaya are good sailors. They catch fish for food and rely on the sea and rivers for transport, because travel by land is extremely difficult.

Keystone

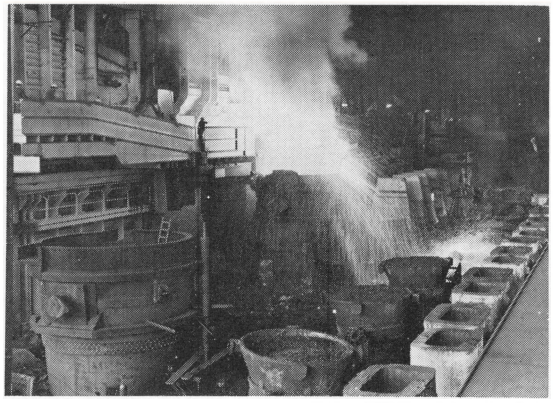
Australian News and Information Bureau

IRON AND STEEL INDUSTRY has reached various stages of development in the countries of Australasia. Australia has a flourishing iron and steel industry and ranks thirteenth as a producer of iron and steel in the world. Indonesia, Malaysia, New Zealand, and Singapore are in the process of establishing their own iron and steel industries.

In Australia, the annual production of raw steel is 8.7 million tonnes (8.7 million tons). The Broken Hill Proprietary Co. Ltd. (BHP) produces virtually all the iron and steel in Australia and, with its associated group of companies, forms the largest Australian-owned industrial complex in Australia. The group employs more than 56,000 people, mines more than 7 million tonnes (7 million tons) of coal, and quarries 17 million tonnes (17 million tons) of ironstone a year. It also quarries limestone, dolomite, and manganese ore.

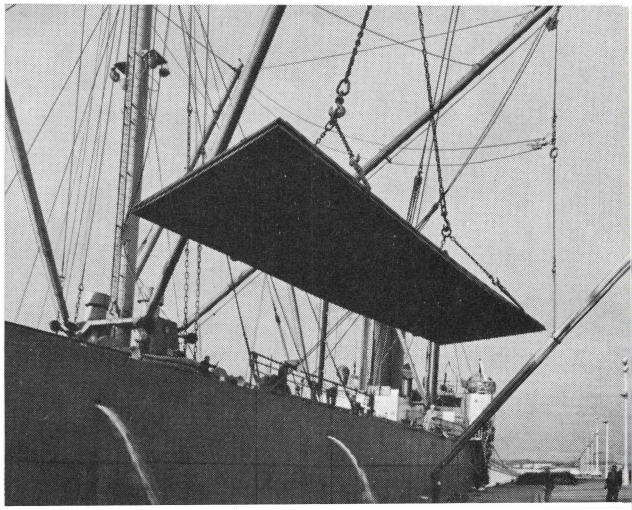
In Indonesia, a steel plant was to have been established with Russian assistance at Cilegon, West Java, but the project was abandoned in 1965. The government later decided to try to rehabilitate this

Iron Ore is mined at such sites as Iron Monarch, *top*, by open-cut methods. The ore is then loaded into special cargo ships, *above*, for shipment to iron and steel works.



Broken Hill Proprietary Co., Ltd.

Molten Steel, after purification in open-hearth furnaces, is poured into moulds for final treatment.



Steel Products, such as steel plate, are shipped from nearby wharves for use in many other industries.

Mark Strizic

project, because a large proportion of the equipment had been delivered. At Prai, in Malaysia, a small steelworks, established with Japanese assistance, uses local iron ore. It is smelted in a small blast furnace, which uses charcoal obtained from rubber trees as fuel and as a reducing agent. In New Zealand, an electric furnace steel plant uses iron produced from local deposits of iron-sand. Singapore has no integrated steel plant, but produces some of its steel in an electric furnace plant, which is fed with scrap from local shipbreaking operations and other sources.

Iron Ore Resources

There are no accurate official estimates of the extent of iron ore deposits in Australia. Western Australia, which has one of the largest iron ore resources in the world, has estimated reserves of at least 18,000 million tonnes (18,000 million tons), containing 50 per cent. or more iron, of which 8,000 million tonnes (8,000 million tons) contain 60 per cent. or more iron. More than 1,000 million tonnes (1,000 million tons) have been proven as *direct shipping ore*—ore containing 64 per cent. or more iron. There are immense tonnages of lower-grade ores available if they are ever required. A large quantity of Western Australia's iron ore is being exported, much of it to Japan.

Most of the raw iron ore for processing in Australia comes from South Australia and Western Australia. Australia's iron and steel works mainly use high grade ore from the Middleback Ranges, in South Australia, which provide more than 5 million tonnes (5 million tons) of iron ore annually. About 3 million tonnes (3 million tons) of iron ore a year are obtained from Yampi Sound, in north-western Western Australia, and from Koolyanobbing, which is about 480 kilometres (300 miles) north-east of Perth.

Much of the iron ore mined in Australia is made into steel in the country, but exports are increasing in importance. Large quantities of iron ore and iron ore pellets are shipped overseas, mainly to Japan, from Mt. Tom Price, in the Hamersley Range; Mt. Whaleback, in the Ophthalmia Range; and Mt. Goldsworthy, all in Western Australia; Savage River, Tasmania; and the Middleback Ranges, near Whyalla, South Australia.

Indonesia has ore deposits in southern-eastern Kalimantan, in central Sulawesi, in the Moluccas, and elsewhere. These ore deposits are of low quality.

In Malaysia, more than 6 million tonnes (6 million tons) of iron ore are produced annually. Major deposits are at Bukit Besi, Ulu Rompin, and Pelephat Kanan. The deposits at Ulu Rompin include minerals that contain more than 60 per cent. iron.

New Zealand's iron and steel industry makes use of about 150 million tonnes (150 million tons) of *iron-sand* (titanomagnetite) in the area around Waikato North Head. These deposits contain nearly 60 per cent. iron. Planners estimate that the deposits will maintain an output of about 508,000 tonnes (500,000 tons) of steel a year for about 150 years.

How the Ore Is Handled

Workers use the open-cut method to extract almost all the iron ore mined in Australia and Malaysia, because most of the deposits lie close to the surface of the earth. First, the ore is blasted free. Then, huge electric shovels load it into highway trucks. The ore is transported to various steelworks by trucks and ships. New Zealand uses a similar method in exploiting its iron-sand deposits.

In Australia, the ore from South Australia and Western Australia goes to the steelworks at Newcastle and Port Kembla by rail and sea. The third integrated steelworks, at Whyalla, is only about 48 kilometres (30 miles) from the Middleback deposits. The blast furnace at Kwinana, in Western Australia, is fed with ore from sources in that state.

Iron and Steel Works

The Broken Hill Proprietary Co. Ltd. (BHP) employs about 56,000 people in smelting, converting, refining, and rolling iron and steel. More than 30,000 of these people work in plants in New South Wales. Blast-furnaces produce pig-iron and hot metal for steelmaking at Port Kembla and Newcastle in New South Wales, at Whyalla in South Australia, and at Kwinana in Western Australia. Basic oxygen steelmaking furnaces are used at Newcastle, Port Kembla, and Whyalla. The Port Kembla open-hearth furnaces use oxygen injection. Electric furnaces are used to produce special alloy steels.

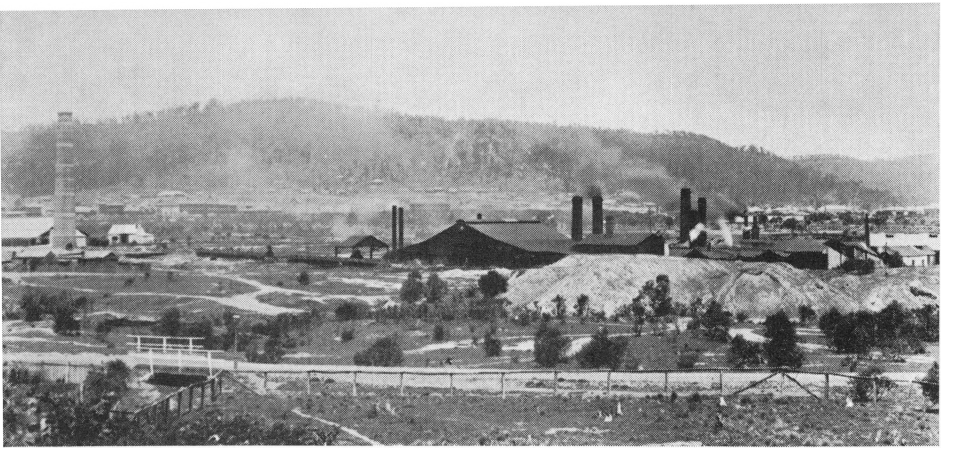
BHP virtually controls Australia's steel industry. It has leases over iron ore deposits, extracts most of its own coal, produces its own steel and associated products, and organizes its own loading and shipping. Its shipping fleet is the largest privately-owned fleet in Australia. The company also builds many of its own large ore carriers—ships of up to 106,680 tonnes (105,000 tons)—at its shipyard at Whylla.

The company's integrated steelworks are at Newcastle and Port Kembla, New South Wales, and Whyalla, South Australia. At Kwinana, BHP has a fence post plant and merchant mill and a blast furnace that produces most of the country's foundry iron. The Kwinana plant is planned to make steel before 1980. In 1972, a steel rolling mill operated by BHP's associate, John Lysaght of Australia Ltd., began operations at Westernport, Victoria. The oldest steelworks of the BHP group, at Newcastle, has a raw steel capacity of 2.2 million tonnes (2.2 million tons) a year. It has four blast furnaces and three basic oxygen steelmaking furnaces. One of the furnaces supplies steel to the continuous casting plant.

Australia's largest steel plant, at Port Kembla, has a raw steel capacity of 5.4 million tonnes (5.4 million tons) a year. The plant has five blast furnaces and 13 open-hearth steelmaking furnaces, as well as two electric furnaces and a basic oxygen steelmaking plant. Whyalla, the third integrated steelworks, produces a million tonnes (a million tons) of steel a year. It operates two blast furnaces and two basic oxygen steelmaking furnaces.

Products of the Industry

The major products of the iron and steel industry are pig iron, ferro-alloys, steel ingots, *blooms* and *billets* (semi-finished steel), bars, plates, sheets,



Successful Ironworks were first established at Lithgow, in New South Wales. The plant used ore from nearby Carcoar, near Bathurst.

The Mitchell Library

structural sections, rails, rods, strip, rolled steel products, and tin plate.

Newcastle plants produce mainly plates, merchant bar, pipes, wire, and wire products. Port Kembla produces mainly plate and hot rolled strip, cold rolled strip, and tinplate. Whyalla produces chiefly angles, channels, beams, billets, blooms and universal beams, and columns.

In Malaysia and Singapore, the main products from local plants are reinforcing bars. New Zealand steel workers will eventually produce billets, wire rods, hot and cold rolled strip, galvanized sheets, welded pipes, tin plate, and rails.

Selling the Products

Australian consumption of crude steel is 547 kilograms (1,207 pounds) per head of population—extremely high by world standards. Almost all of this steel is produced in Australia. Manufacturers import only special types of ferro-alloy products that are not produced in Australia.

Australian buyers purchase most of the country's iron and steel products, but more products are now being exported. The most important overseas customers are the Philippines and New Zealand. Other customers include Britain, Indonesia, the United States, Japan, Hong Kong, Singapore, and Taiwan.

History

During the 1800s, several efforts were made to establish iron-making plants. In 1864, the first blast furnace was blown in at Mittagong. Only one plant, the Eskbank Works, at Lithgow, New South Wales, was successful. The first Australian steel was made there in 1900.

The Broken Hill Proprietary Co. Ltd., was formed in 1883 to mine silver, lead, and zinc at Broken Hill. In 1897, it acquired leases in the Iron Knob and Iron Monarch areas in South Australia. In the early 1900s, the company's directors realized that its leases at Broken Hill were becoming worked out and, with rich iron ore reserves readily available, the company decided in 1911 to go into the iron and steel business. Newcastle, New South Wales, was chosen as the location for the new venture in steel. In March, 1915, the first blast furnace was blown in and in April the first steel was produced. The initial capacity of the works in 1915 was about 152,400 tonnes (150,000 tons) a year. In spite of difficulties caused by the depression in the 1930s, the industry grew steadily. In 1935, BHP acquired all the ordinary shares of Australian Iron and Steel Ltd., which had its origins in the Eskbank Ironworks, established at Lithgow in 1876. Fifty years later, these operations moved to Port Kembla, on the southern coalfields, 80 kilometres (50 miles) south of Sydney. When World War II began in 1939, Newcastle and Port Kembla had a combined capacity of 1·5 million tonnes (1·5 million tons) of ingot steel a year. Both plants made a big contribution to the national war effort. Development immediately after World War II proceeded slowly, but by the 1950s, the company was expanding again.

At Port Kembla, a hot strip mill, tinplate plant, and associated coke, iron, and steelmaking facilities were installed. At Newcastle, a 10-year programme of plant modernization began in 1958 and transformed the works. The new techniques of basic oxygen steelmaking and continuous casting were introduced and high-speed rolling mills were installed.

Another centre of development was Whyalla. From the early 1900s, iron ore from Iron Knob and Iron Monarch had been shipped from what was then a tiny port on Spencer Gulf. By 1941, a blast furnace had been built at Whyalla, and work was begun on a shipbuilding yard which now makes the largest ships built in Australia. Development after World War II at Whyalla included steelmaking and rolling facilities and an iron ore pellet plant.

Related Articles. See IRON AND STEEL in the main volumes. See also AUSTRALIA [map] and the following articles in the Australasian volumes of WORLD BOOK:

Broken Hill Proprietary Company Ltd.
Hamersley Range
Iron Knob
Kwinana
New South Wales
Newcastle
Port Kembla
South Australia
Western Australia
Whyalla
Yampi Sound

IRON KNOB (pop. 1,339) is a small mining town in the Middleback Ranges in South Australia. Workers from the town extract high grade ore from the nearby rich hill deposits at Iron Monarch.

When the Broken Hill Proprietary Company (BHP) first started quarrying iron ore in the district, in 1900, the Iron Knob mountain of iron was being worked, but operations switched to Iron Monarch in 1914. Another deposit of iron ore not far from Iron Monarch is the Iron Prince quarry, also in the Middleback Ranges. Its township is called Iron Baron.

IRON-SAND. See IRON AND STEEL INDUSTRY (Iron Ore Resources) in this volume.

IRRIGATION varies greatly in importance among the countries of Australasia. It is vital for the full development of Australia's agricultural resources, because Australia receives so little rain. On the other hand, most of New Zealand receives ample rainfall, and only a few districts need irrigation. Indonesia and Malaysia have wet climates, but their rainfall is seasonal. They need irrigation schemes to conserve water for use during the dry season. In both countries, irrigation schemes are used mainly to supply water for rice paddies.

Irrigation in Australia

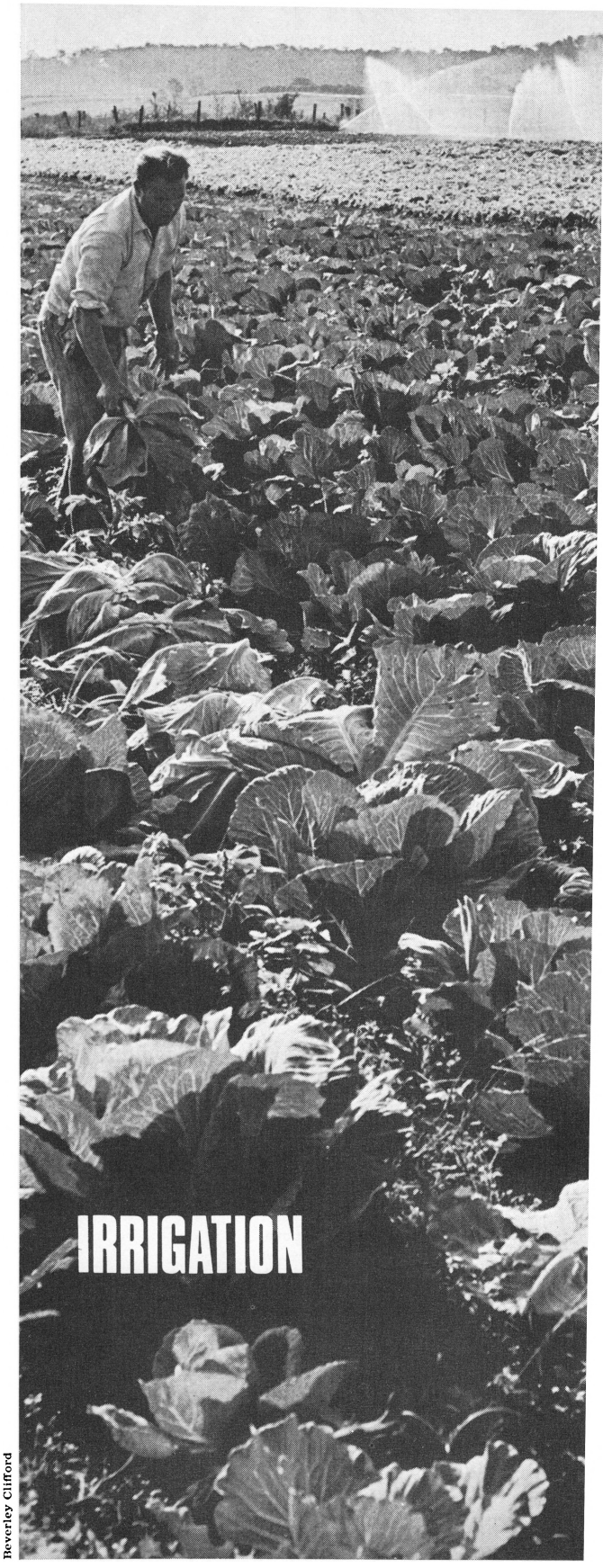
Australia is the world's driest continent. It receives an average of only 46 centimetres of rain a year—20 centimetres a year less than the average for all the world's land areas. The total flow of Australia's rivers is also small—about 345,000 million cubic metres a year. By comparison, one river in India, the Ganges, has a flow about twice as great. For these reasons, irrigation and water conservation are vital to Australian agriculture. Altogether, irrigation schemes supply water to about 10,100 square kilometres of land in Australia—about 0·2 per cent. of all rural land. But this land produces 10 per cent. of all Australia's agricultural produce.

Out of every 40 hectares of irrigated farm land in Australia, Victoria has about 17 hectares, New South Wales has about 16, Queensland has about 3·6, and South Australia has about 1·6. Western Australia's small irrigation area is mainly in the south-west, but the full development of the Ord River project, in the north, would increase the total enormously. Tasmania has little irrigation.

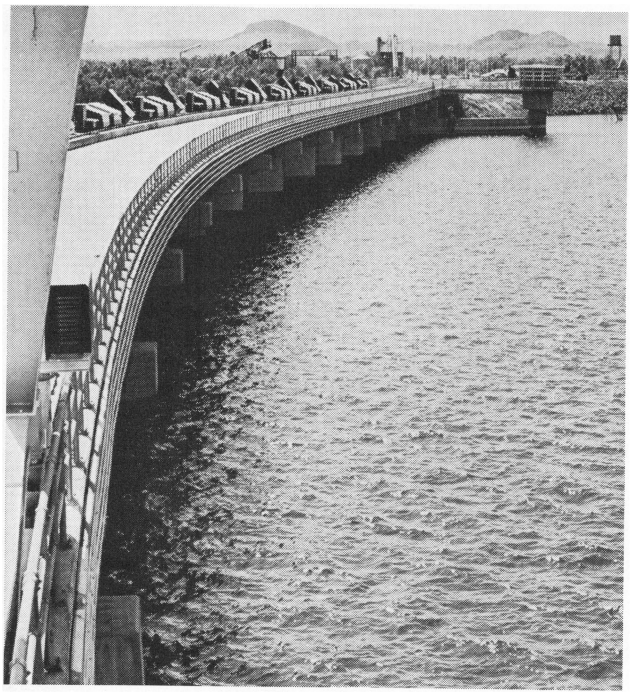
Most irrigation schemes in Australia are based on the construction of large storage dams and extensive diversion and distribution works. In some areas, water is pumped directly from rivers. Underground water irrigates some other areas, such as the Burdekin delta in Queensland.

The Murray-Darling Basin contains the vast bulk of Australia's irrigation areas. The basin extends into four states—New South Wales, Queensland, South Australia, and Victoria. Many dams and diversion weirs store and control the waters of the Murray and Darling rivers and their tributaries, including the Goulburn, Lachlan, and Murrumbidgee. The Snowy Mountains scheme supplies nearly 2,500 million cubic metres of water a year to the Murray and Murrumbidgee rivers (see SNOWY MOUNTAINS SCHEME in the other Australasian volume). The scheme includes Australia's biggest reservoir, Lake Eucumbene. It holds nearly 4,900 million cubic metres of water. Other major reservoirs include the Eildon reservoir on the Goulburn River (3,392,000,000 cubic metres) and the Hume reservoir on the Murray River (3,080,000,000 cubic metres).

The River Murray Waters Agreement governs the use of the Murray's water. Under the agreement, at least 1,546,800,000 cubic metres of Murray water flows into South Australia each year. Apart from this amount, New South Wales and Victoria share equally the water available at Albury. The two states have complete control over water in the

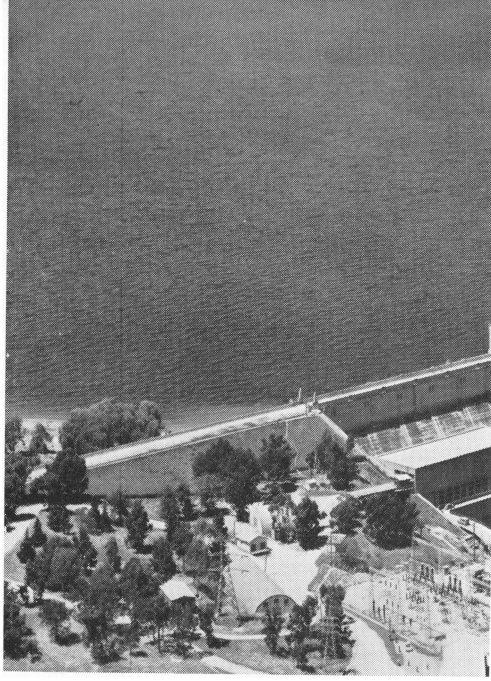


Beverley Clifford

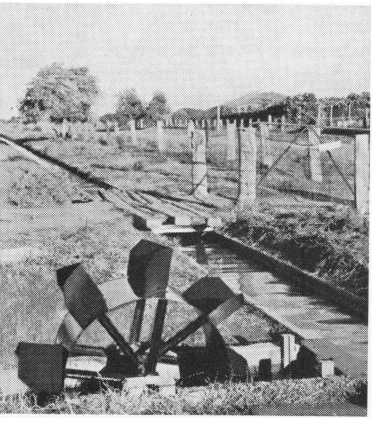


Brian McArdle

The Ord River Scheme, *above,* is in the far north of Western Australia. Cotton is a major crop there.

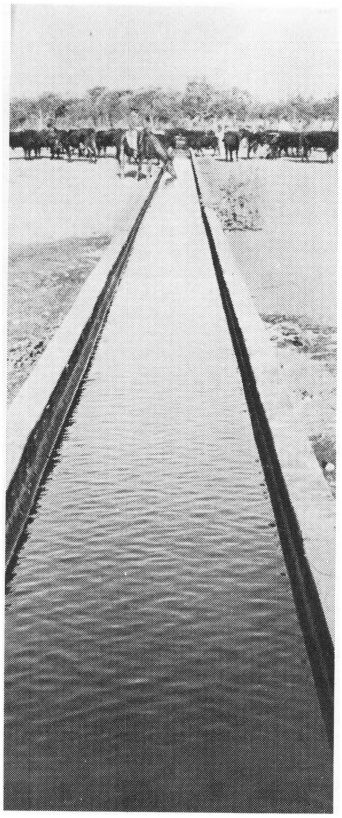


The Hume Reservoir on the Murray River, *above,* supplies water for irrigation to 2,600 square kilometres of south-eastern Australia.



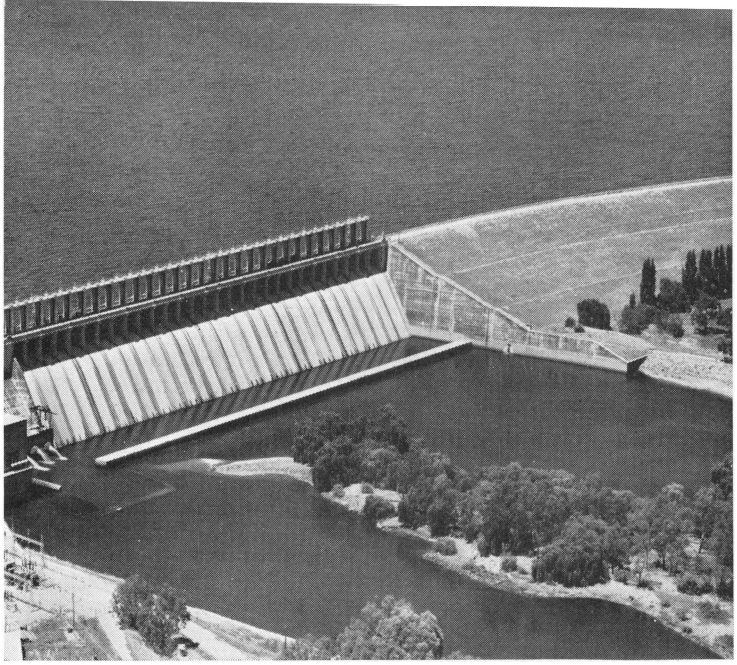
N.S.W. Irrigation Commission

A Dethridge Meter, *above,* measures the amount of water flowing onto an area of land.



Troughs, *right,* carry water for livestock to drink as well as for irrigating pasture land.

Ditches, *far right,* carry irrigation water to fruit trees in the Murrumbidgee valley.



Australian News and Information Bureau

N.S.W. Irrigation Commission

Pipes, *above,* **distribute water to fields of vegetables in New South Wales. Irrigation allows farmers to use millions of acres of land that would otherwise lie barren.**

tributaries that lie within their borders. More than 6,220 square kilometres of land receive irrigation water from the Murray and its Victorian tributaries. More than half of this land is pasture. Important irrigated crops include fruits and fodder crops.

The Murrumbidgee and Lachlan rivers are really separate systems from the Murray. Irrigated areas on the Murrumbidgee total more than 5,200 square kilometres, and those on the Lachlan 1,300 square kilometres. The Blowering reservoir, completed in 1968, is designed to store water from the Snowy Mountains scheme in the Tumut River, a tributary of the Murrumbidgee. The main storage on the Lachlan is the Wyangala reservoir. Farmers use some Murrumbidgee water for irrigating pasture, but they grow more crops than do those on the Murray. They grow grain, fruits, and vegetables.

The Ord River, in the East Kimberley district of Western Australia, has been partially developed. The Bandicoot Bar diversion dam diverts Ord water to 122 square kilometres of land. Farmers there grow cotton, rice, safflower, and linseed. Many planners believe that the Ord should be more fully developed. They recommend building a storage dam and power station farther upstream. The dam would have a normal storage capacity of 4,320,000,000 cubic metres—enough to irrigate 780 square kilometres of land. It could hold an extra 8,020,000,000 cubic metres for flood control.

Other Projects are principally in Queensland, where about 780 square kilometres of land are irrigated. Western Australia has about 210 square kilometres and Tasmania about 100 square kilometres. In many places, especially in the Great Artesian Basin, artesian bores supply drinking water. But there is not enough good water to irrigate much land.

The greatest future development of irrigation in Australia will probably be in the largely undeveloped northern half of the country. This region has about two-thirds of all Australia's available surface water. But it has a hot climate, which causes rapid evaporation. As a result, men would have to build extremely large and expensive storage reservoirs to supply irrigation water. Experts believe that the Fitzroy and Burdekin regions of Queensland and the rivers flowing into the Gulf of Carpentaria offer the greatest scope for future development.

Irrigation in Indonesia

Most of Indonesia receives large amounts of rain, but it is seasonal. A dry season between the rainy monsoon seasons may last a number of weeks. For this reason, Indonesian farmers rely on irrigation systems to retain water for growing rice by the wet system. This method is particularly well developed in Java and Bali. More than 4,140 square kilometres of land receive irrigation water in Java.

River water, carrying fertile silt, flows by gravity to the terraced rice fields of these islands. In building a weir to hold back the water of a river, farmers use rocks, bamboo, soil, and other local materials. They then build a canal to carry the water to the fields, where it enters a system of branch canals and distributaries. The water flows from one *sawah* (paddy) to a lower one through slits in the dikes or through bamboo tubes. The water flows slowly so that the plants can receive the greatest benefit from it. Drainage canals carry the unused water and excess rainfall away.

This method of irrigation has worked well for hundreds of years, but many systems have gradually deteriorated. During the wet monsoon, swollen rivers may wreck the weirs, or too much water may enter the system, causing great damage.

The Dutch introduced more modern irrigation systems during colonial days. Their projects still exist in many parts of Java. They consist of dams or weirs with sluice-gates to regulate the water flow. Scouring sluices keep loose material from silting up the system. Systems of canals with check-gates

distribute the water. In many places, aqueducts, culverts, or inverted siphons carry the water across roads or other obstacles.

In some parts of Indonesia, flood control is as important as irrigation, but schemes may achieve both purposes. Dams regulate the flow of water. Drainage channels may carry the excess water away. In other places, widening a river and strengthening its banks may prevent flooding. Several schemes include sunken storage reservoirs. They hold the excess water from the wet monsoon for use during periods of drought.

Important multipurpose schemes include those at Jatiluhur in West Java; Catayaban and Sempor in Central Java; and Ngebel and Karangkates in East Java. They all aim to provide water for irrigation and hydro-electricity, create fisheries and recreational areas, and control floods. The biggest is at Jatiluhur. It irrigates more than 3,110 square kilometres of rice fields. Fishermen catch 810 tonnes of fish a year in the reservoir.

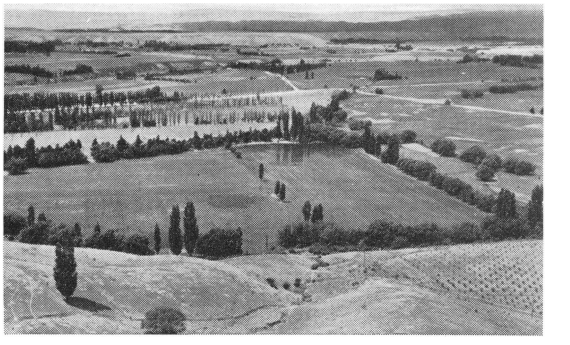
Government irrigation services construct, manage, and maintain irrigation, drainage, and flood control schemes in some regions. A chief engineer heads an irrigation district. His staff is responsible for the proper distribution of water, for supervising the irrigation works, and for building new ones. Farmers operate the distributaries. The government partly finances the upkeep of the schemes.

Irrigation in Malaysia

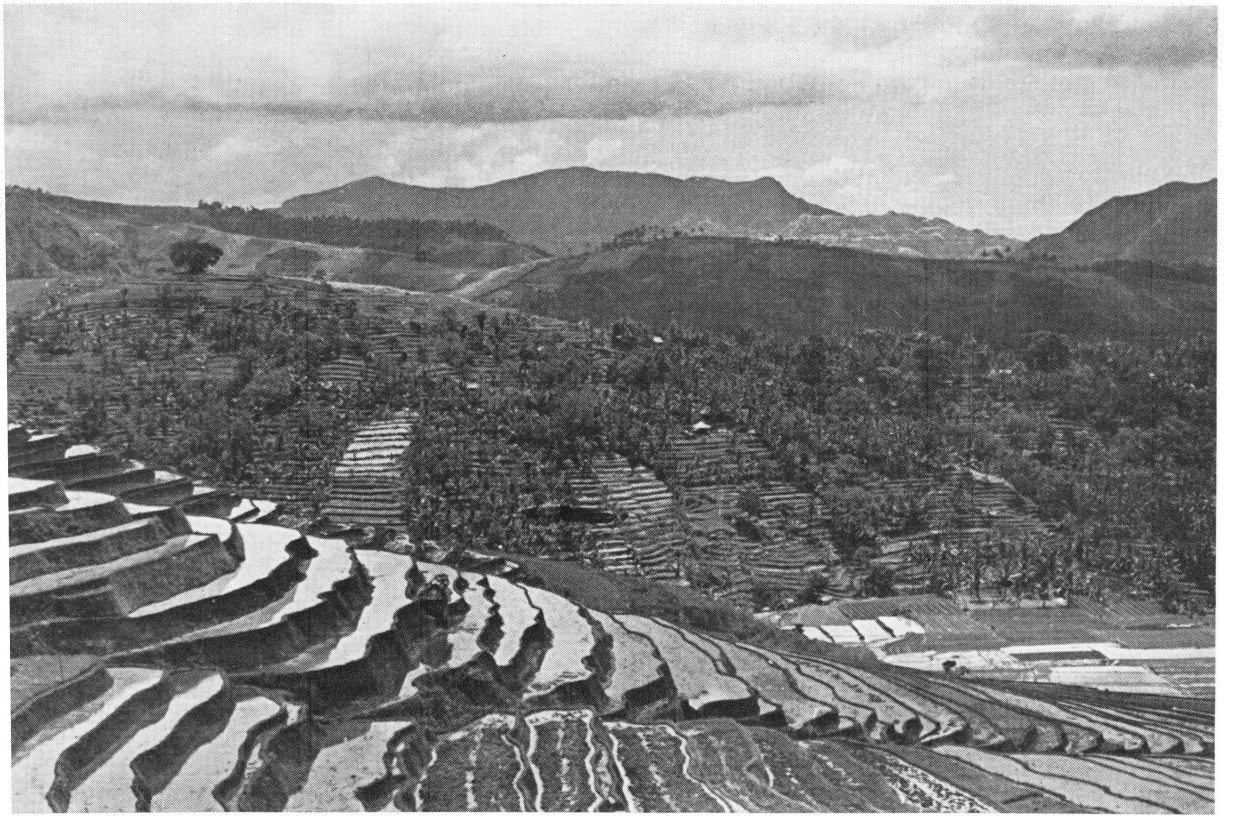
Most of Malaysia receives about 250 centimetres of rain a year. But irrigation is still necessary, because the water runs quickly off the mountains, leaving little behind even in the lower reaches of the rivers. In addition, the heat of the sun evaporates up to 180 centimetres of water a year from the soil.

Almost all irrigation water is used to grow rice, which needs 30 centimetres of rain in each month of growth. Few parts of Malaysia have enough rain to meet this demand. In the north-west and along the eastern coast of Malaya, hardly any rain falls for

In Central Otago, *below,* **irrigation schemes relieve the drought that hot summers bring to this part of New Zealand.**
New Zealand National Publicity; Paul Popper



Terraced Rice Fields, *below,* **are common in Bali and Java. Indonesians have used this form of irrigation for centuries.**



M. Wong

The Tanjong Karang Scheme in western Malaya supplies water to a rich rice-producing area called the "Rice Bowl".

two, three, or four months of the year. In central and south-western Malaya, no month has as much as 12 inches of rain. Other crops in Malaya, such as vegetables, maize, and tobacco, also need irrigation.

The largest irrigation areas in Malaya are in the coastal plains of Perlis and Kedah. They extend southwards, through the mainland part of the state of Penang and the Krian and Matang districts of Perak, to Tanjong Karang in Selangor. These areas have 60 per cent. of all Malaya's irrigated land. Other important irrigation areas include the flood plains of the Perak and Kelantan rivers and the lowlands bordering the Palang.

Irrigation in New Zealand

Only two areas of New Zealand need irrigation. They are in Central Otago and the Canterbury Plains, both in the South Island.

The highland valleys of Central Otago have hot, dry summers and cold winters. Gold-miners built the first water-courses more than a hundred years ago. Today, hundreds of miles of races and pipelines carry water to the region from mountain lakes, from hill streams, from dammed streams in the upper valleys, and from a hydro-electric storage dam. As a result, the valleys now have rich pastures, orchards, and arable land. The schemes cover an area of about 350 square miles.

The Canterbury Plains flood and canal irrigation schemes cover an area of about 2,600 square kilometres (1,000 square miles). The region is damp for most of the year, but hot, dry winds blow from the Southern Alps during summer. Several canal systems supply water to the plains. The largest, from the Rangitata River, also feeds a hydro-electric power station at Highbank. The irrigation scheme was started in the 1930s.

Aids to Learning

Related Articles. See IRRIGATION in the main volumes and the following articles in the Australasian volumes:

Artesian Water	Droughts	Reservoirs
Bradfield, John Job Crew	Murray	Snowy Mountains Scheme
Chaffey (family)	Murrumbidgee	Tanjong Karang
	Ord	

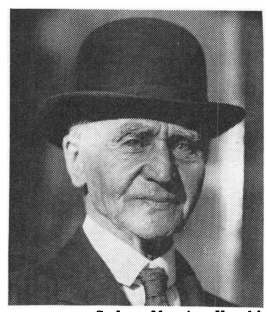
Outline of this article is as follows:

I. **Irrigation in Australia**
II. **Irrigation in Indonesia**
III. **Irrigation in Malaysia**
IV. **Irrigation in New Zealand**

Books to Read about this topic include:

Anderson, Hugh. *Fruit and Irrigation* (*Primary Industries*). Lothian, 1970.
Hill, Ernestine. *Water into Gold*. Ure Smith, 1969.
Kempe, Humphrey. *The Astonished Earth*. Heinemann, 1958.
Pownall, Eve. *Harnessing Australia's Water Resources*. Methuen, 1971.

ISAACS, SIR ISAAC (1855-1948), was the first Australian-born governor-general of Australia. He served as governor-general from 1931 to 1936. He was born in Melbourne. He was educated at Beechworth Grammar School and studied law at Melbourne University. He served in the Victorian Legislative Assembly from 1892 to 1901. He was a member of the federal House of Representatives from 1901 to 1906. He served as a justice of the High Court of Australia from 1906 to 1930. He was chief justice of the court for a few months before he became governor-general.



Sydney Morning Herald

Sir Isaac Isaacs

JACKEROO is an apprentice to pastoral station management. A jackeroo is usually 18 years old, and starts his training by learning general sheep or cattle farming methods and activities. The steps to further promotion are: bookkeeper or storekeeper, junior overseer or overseer, supervising the work of the station hands, and lastly station manager.

JACKY JACKY, an Aborigine from the Merton district, in New South Wales, accompanied Edmund Kennedy on his ill-fated expedition along the north-eastern coast of Queensland in 1848. His real name was GALMARRA. Kennedy and his party were overcome by heat and hunger, and were attacked by hostile Aborigines. Kennedy left eight men behind at Weymouth Bay and two more men at Shelburne Bay. He kept Jacky Jacky with him as he tried to push on to meet a relief ship at Cape York. But Aborigines wounded both men. Jacky Jacky stayed with Kennedy until he died. Then he buried Kennedy's notes and struggled on to meet the ship. He directed the ship to the camps at Weymouth and Shelburne bays, but the rescuers found only two men alive.

Antara

Jakarta

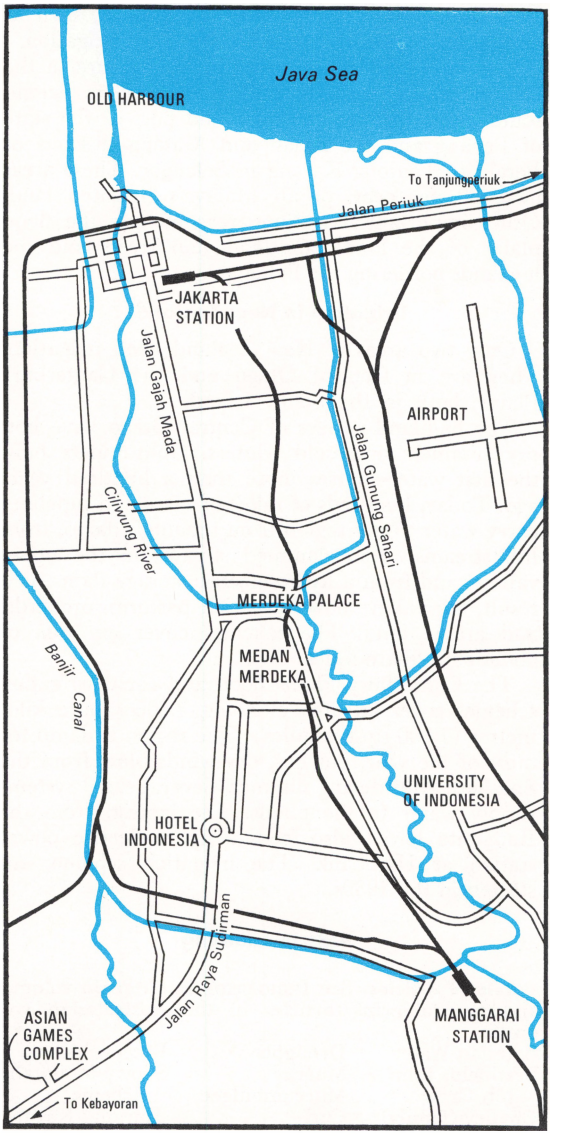
The Hotel Indonesia, *left,* is one of the many large modern buildings in Jakarta.

JAKARTA (pop. 4,576,000) is the most important city in the Republic of Indonesia. It is the national capital and the main commercial and communications centre. According to the 1961 census, Jakarta had a population of 2,922,000. By the 1971 census, the population had grown to 4,576,000. Jakarta is more than twice the size of Surabaya, Indonesia's second largest city. When Indonesia was a Dutch colony, Jakarta was its capital, but was then called *Batavia.* The name *Jakarta* is a corrupted version of Jayakarta, its old name, which means *victorious and peaceful.*

Location, Size, and Description. Jakarta is in northwestern Java. It stands on the northern coast, on the shore of the broad Bay of Jakarta, where the Ciliwung River flows into the Java Sea (see INDONESIA [colour maps] in this volume). The Jakarta metropolitan area has the status of a province. Its lord mayor has the status of a governor. The whole metropolitan area of Jakarta covers 585 square kilometres (225 square miles). Jakarta is only a few metres above sea level, and some areas around the city are swampy. Until the building of the Banjir Canal, water often flooded parts of the city. An artificial lake dug to the north-west of Jakarta is also designed to drain the land and help prevent flooding. The lake is below sea level, and pumps remove the water that collects in it, pouring the water into the sea.

Jakarta is a sprawling city, with huge suburbs of low buildings. But parts of the old city of Batavia still stand to the north of the central area. Canals dug by the Dutch to drain the swampy land flow between colonial-style houses as much as 250 years old. Drawbridges cross the canals. In the northern part of the old city, near the old harbour, the fort built by the Dutch still stands. The city centre is also the business district, with banks and offices. Many of them now occupy tall, modern buildings. Nearby are the parts of the city where many Arabs and Chinese live.

The city was never truly planned, and many of its streets are narrow, crowded, and noisy. But, since 1959, when the Indonesian government decided to make Jakarta the permanent capital of the country,



many new buildings have been erected on broad streets. Many streets have been broadened to ease the flow of traffic. City buses and *opelets* (small buses) carry people and luggage from place to place in the city. The other form of transportation consists of bicycle-rickshaws called *becaks,* which will be abolished gradually. Travellers from the suburbs use buses and diesel and electric trains.

Jakarta is hot throughout the year. The average annual temperature is 26° C (79° F). An average of about 1,778 millimetres (70 inches) of rain falls each year, mainly between January and March. The dry season extends from July to September.

Industry, Trade, and Communications. Jakarta has no heavy industry, but many factories, warehouses, and commercial offices stand in the metropolitan area. The main factory zones are on the city's outskirts, at Sunda Kelapa, the old harbour; at Cijantung; and on the road to Tangerang. Workers in these factories make such products as shoes, chemicals, domestic appliances, and electric batteries. Others assemble such goods as radios, television sets, and other household equipment, the parts for which are imported from other countries. Similar plants near Jakarta's port, Tanjungperiuk, assemble imported motor cars and lorries.

Jakarta is the most important commercial centre in Indonesia. It has the headquarters of the state trading corporations, and also of most of Indonesia's large private companies. Most banks and insurance companies have their headquarters in or near the broad Jalan Raya Sudirman, in the centre of the city. Warehouses near Tanjungperiuk store produce awaiting export, including rubber, tea, and sisal. In terms of the weight of goods handled, Tanjungperiuk ranks first among Indonesia's ports.

Most of the Indonesian shipping lines serving Indonesian and overseas ports are based in Jakarta. It is also a regular port of call for shipping lines of other countries. Jakarta has two airports—Kemayoran Airport for domestic flights, and Halim Perdanakusumah International Airport for international flights. Extensive road and rail systems link Jakarta with other parts of Java.

Life of the Community. Jakarta is the most cosmopolitan city in Indonesia. Its inhabitants include people from all parts of the country and from many other countries. The Indonesians in Jakarta belong to more than 50 ethnic groups. They are free to choose the religion they wish to follow. The main religion is Islam, but there are large groups of people following other religions (see RELIGION IN INDONESIA in the other Australasian volume). People from other countries living in Jakarta include large groups of Arabs, Chinese, and Indians. Large numbers of diplomats and other people working in the various embassies, consulates, and overseas companies also live in the city. The original inhabitants of Jakarta speak a distinctive dialect called *Betawi,* a branch of Coastal Malay. This dialect originated in the Tiau Archipelago, off the eastern coast of Sumatra. It has been strongly influenced by various languages, including Chinese, the Javanese of Central Java, and the Sundanese of West Java. The culture of Jakarta, including folk-songs and folk-dances, also originates basically from the folk-culture of the coastal Malays.

Since the 1850s, Jakarta has been a centre of learning. In 1851, the Dutch authorities established a school of medicine. In addition to many distinguished doctors, several of Indonesia's political leaders studied at the school. Others attended the law school, which was established before World War II. The movement for Indonesian independence started in the 1920s and 1930s, led by men who had attended these schools.

Today, Jakarta is the site of several universities, including the University of Indonesia, the Christian University of Indonesia, and the National University (see UNIVERSITIES in the other Australasian volume). The city also has various special academies that train students in such subjects as civil aviation, journalism, commerce, and police and marine work. The state-run *Balai Pustaka* (Literature Institute) is also in Jakarta. It publishes and circulates books at low prices to encourage people to read good works of literature. Jakarta has the greatest variety of newspapers in Indonesia. It also has several radio stations of Radio Republik Indonesia (RRI) and the first television station of Televisi Republik Indonesia (TVRI).

Things to See and Do

In the centre of Jakarta is the *Medan Merdeka* (Freedom Square). It is surrounded by government buildings, including the spacious presidential palace, which consists of two buildings separated by a large attractive garden. Both buildings of the palace are painted white, and are wide, with flat roofs and tall columns. The larger building, the *Istana Merdeka* (Freedom Palace), faces the square. It is the official palace of the president of Indonesia. The Dutch transferred sovereignty to the Republic of Indonesia in this building in 1949. The *Istana Negara* (State Palace), to the north, is smaller. It was the residence of the Dutch governor-general until the larger palace was completed in 1878. It is now used for state functions. A tall monument, the *Monas* (National Monument), arises in the Medan Merdeka, where the Jakarta Fair is held every year.

Near the square stands the National Museum. Some Indonesians call it the *Gedung Gajah* (Elephant Building), because a large statue of an elephant stands in front of it. The statue was a gift from Thailand. The museum was founded in 1868, and contains the finest collection of oriental art and ethnological exhibits in south-eastern Asia. They include an outstanding group of relics and treasures from all parts of Indonesia and a collection of nearly a million books. A performance of *gamelan* music takes place each Sunday (see MUSIC IN INDONESIA in the other Australasian volume). Jakarta's other main museum, the Museum Jakarta, is in the old part of the city. It is housed in an old church, and specializes in relics of Dutch rule and of the folk-lore of Jakarta. The exhibits include many musical instruments and a library of old books.

There are several beach resorts close to Jakarta.

H. F. Schreider, Photo Researchers

Pasar Ikan is the busy fish market of Jakarta. It is situated near the old harbour at the mouth of the Ciliwung River.

The main ones are Pemandangan Laut, which used to be a yacht club, Cilincing, Sindang Laut, and Palmbeach. At all these places, visitors can enjoy boating, fishing, and swimming, but there is no ocean surf. Boats from Tanjungperiuk, or from the old harbour at the mouth of the Ciliwung River, take visitors to some of the *Pulau Seribu* (Thousand Islands) in the Bay of Jakarta.

History. In the 1400s, a small but busy port called *Sunda Kelapa* stood where Jakarta is today. It was part of the Hindu kingdom of Pajajaran, whose capital was near present-day Bogor, about 56 kilometres (35 miles) south of Jakarta. Portuguese merchants later occupied the port. In 1527, a Muslim teacher from Pasai, in northern Sumatra, captured the port for the Muslim kingdom of Demak, of Central Java. His name was Fatahillah, but he is known in Java as Sunan Gunung Jati. He named the port Jayakarta.

In 1596, Cornelis de Houtman, a Dutch seafarer, landed to the west of Bantam, then the most important port in Java. By 1602, Dutch traders had opened a trading post at Jayakarta. In 1614, British traders arrived and also built a post there. Rivalry soon developed between the British and the Dutch. Fighting occurred, and the town was destroyed in May, 1619. The Dutch built a new port on the ruins and called it *Jacatra.* In 1621, they renamed it *Batavia,* after the *Batavians,* a tribe that lived in The Netherlands in Roman times. Sultan Agung of Mataram believed that the Dutch occupation of Batavia was a threat to his rule. In 1628 and 1629, he sent armies to attack the town, but the Dutch defeated them. In later years, the Dutch extended their power to other parts of Indonesia, and Batavia grew in size and importance.

On Aug. 17, 1945, Sukarno and Mohammad Hatta made the famous declaration of independence in Jakarta. But, during most of the revolution that followed, Yogyakarta was the headquarters of the nationalist forces. In 1949, Jakarta became the capital of the newly independent Indonesia, but discussion still continued on whether one of the cooler hill cities should be the permanent capital. Finally, in 1959, the government decided that Jakarta should remain the capital of Indonesia.

JANSZ, WILLEM (1570?- ?), a Dutch sea captain, was the first European to sight the Australian continent. In March, 1606, he reached the mouth of what is now the Pennefather River, on the western side of Cape York Peninsula. He was sailing with another Dutchman, Jan Lodewycksz, in the *Duyfken.* Jansz and Lodewycksz charted the coast south for about 322 kilometres (200 miles) before returning to Banda, in the East Indies. They did not realize that they had discovered a continent. They believed that the coastline was part of New Guinea. Jansz was born at Amsterdam, in The Netherlands. See also History of Australia (map) in this volume.

JARDINE was a family of explorers of northern Queensland. They learned much from the mistakes of the tragic Edmund Kennedy expedition in 1848 over similar terrain. Their Scottish-born father, John Jardine, organized the expedition. Francis (1841-1919) and Alexander (1843-1920) set out from Carpentaria Downs on Oct. 11, 1864. They had 42 horses and about 250 cattle. Their objective was to reach Somerset at Cape York. For much of the way, they had to hack their path through dense jungle. They were attacked by hostile Aborigines and torn and stung by lawyer and calumnus vines. But they finally reached their destination five months later. On the way, 27 horses and a high proportion of the cattle perished.

In later years, Alexander Jardine became a road engineer. He surveyed and made many Queensland roads, including that from Brisbane to Gympie goldfield.

JARRAHS are among the world's most valuable hardwood timber trees. The name is a corruption of the Aboriginal word *jarrale.* They are tall, straight trees, branching at about half their full height. Most jarrahs grow to about 30 metres (100 feet), but they may grow up to 41 metres (135 feet) in height. They are from 0·9 to 1·8 metres (3 to 6 feet) in diameter and have a red grey, fibrous bark. Their leaves are fairly broad, bright green, and pointed, with thickened edges.

Jarrahs grow only in a single area 32 to 48 kilometres (20 to 30 miles) wide in the Darling Range area of Western Australia. Their timber is used for piles, sleepers, furniture, and flooring. Jarrah wood is easily worked and is resistant to attack by termites.

Scientific Classification. Jarrahs belong to the myrtle family, *Myrtaceae,* and are species *Eucalyptus marginata.*

JAVA

Photo Researchers

Farmers in Central Java grow rice in irrigated rice fields called *sawah*. Rice is Java's most important crop.

Fishmongers in Jakarta sell fish at the *pasar ikan* (fish market) on the waterfront of the city.

JAVA is the fifth largest island of Indonesia. The Indonesians spell its name JAWA. It has more people than any other island in Indonesia. About 60 out of every 100 Indonesians live there. Java is also the most densely populated island. To ease the crowding, the government has transferred thousands of people from Java to other parts of Indonesia, such as Sumatra, Sulawesi, Kalimantan, and Nusa Tenggara. The island of Madura is administered as part of Java. A strait, about a kilometre wide, separates Java and Madura.

Java is the most developed of the Indonesian islands. It has a railway system and a growing number of factories and plantations. It also has a large number of schools and universities.

Java is the seat of the central government of the Republic of Indonesia. Jakarta, its largest city, is the capital of Indonesia. Before Indonesia became independent, Java was the centre of Dutch colonial government. Even before this period, Java had been the centre of powerful kingdoms throughout history. Famous temples such as the Buddhist temple of Borobudur and the temples of Prambanan remain from former times.

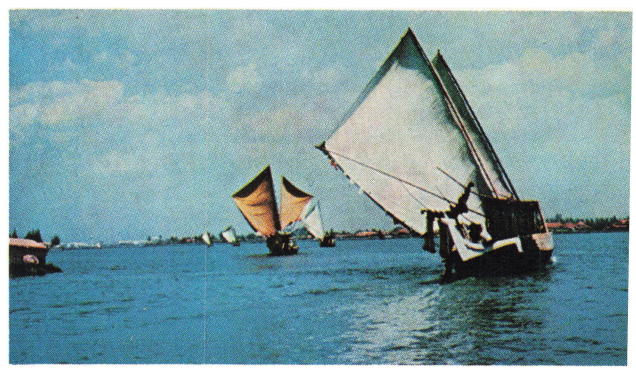


Photo Researchers

Fishermen in many parts of Java fish from square-sailed fishing boats. They use lines, nets, and lures. They catch a wide variety of fish, including Spanish mackerel and tuna.

The Land

Location and Size. The sea to the north of Java is called the *Java Sea*. Most people call the ocean to the south of Java the *Indian Ocean*. The Indonesians call it the *Indonesian Ocean*. Java is separated from Bali in the east by the Bali Strait and from Sumatra in the west by the Sunda Strait. The greatest distance from north to south is just over 208 kilometres (130 miles). The greatest distance from east to west is 1,045 kilometres (653 miles).

Java has five provinces. They are East Java (pop. 25,526,714, including Madura), Central Java (21,877,081), West Java (21,632,684), Jakarta special capital region (4,576,009) and the special region of Yogyakarta (2,489,998).

Land Features. A chain of mountains runs from west to east. It is flanked in the north by lowlands and in the south by limestone ridges. Indonesians

FACTS IN BRIEF

Provincial Capitals: Bandung (West Java); Jakarta; Yogyakarta; Semarang (Central Java); Surabaya (East Java).

Largest Towns: Jakarta, Surabaya, Bandung, Semarang, Surakarta, Yogyakarta.

Area: 132,686 square kilometres (51,033 square miles).

Population: 63,059,575.

Chief Products: *Agriculture*, cassava, peanuts, potatoes, rice, soya beans. *Manufacturing and Processing*, glassware, textiles. *Mining*, gold, manganese, petroleum, phosphate, sulphur.

Photo Researchers

Javanese Dances represent Hindu and Javanese stories. Ancient court dances have quiet, elaborate gestures. Each movement has meaning.

Javanese Volcanoes include Tangkuban Perahu, near Bandung in West Java. Tourists can view the volcano's crater from a platform.

say that the chain runs from west to east because, according to one legend, the Hindu gods moved the mountain of Mahameru from India to Java. On the way, parts of the mountain fell off and created a chain of mountains from west to east. According to the legend, the gods put down the top of this "king of mountains" in East Java. This mountain, the highest in Java, is also called *Semeru*. It rises to a height of 3,618 metres (12,060 feet) above sea level.

Java has several mountains more than 3,000 metres (10,000 feet) high—Slamet, Sumbing, Merbabu, and Sundoro in Central Java; and Raung Arjuno, Lawu, and the active volcanoes Semeru and Argopuro, in East Java. Other active volcanoes include Papandayan and Tangkuban Perahu, in West Java; Merapi in Central Java; and Bromo and Kelud in East Java. Kelud erupted in April, 1966, killing many people. Merapi is one of the most dangerous of the other volcanoes. Krakatoa is a small but dangerous island volcano in the Sunda Strait. Its terrible eruptions in 1883 and 1927 have made it well known throughout the world. See VOLCANOES in the other Australasian volume.

Rivers. Most rivers in Java run northwards. Only a few go to the southern coast. Small boats can sail up them during the wet season. But the rivers are more important for irrigation. West Java has three main rivers. The Ciliwung runs through Jakarta. The Citarum has caused countless floods in the past. But it is now controlled by the Jatiluhur dam, which has created a large lake. The dam has a hydroelectric power station.

The most important river in Central Java is the Bengawan Solo. It runs from an area south of the city of Surakarta, which is also called *Solo*. Then it turns to the east and flows into the Java Sea near the strait that separates Java from Madura. The Bengawan Solo is 538 kilometres (336 miles) long and is the longest river in Java. East Java's most important river is the Brantas. A project similar to that of the Jatiluhur dam is situated on the Brantas at Karangkates, near Malang.

Climate. Java has a warm climate, but it is rarely extremely hot. The temperature averages from 26°C (78°F) to 27°C (80°F). But sea breezes and thunderstorms in the wet monsoon often provide relief from the heat. The hottest area is in the plains along the northern coast. The mountain areas have much cooler weather.

Most areas are extremely humid. The humidity varies between 78 and 88 per cent. A northwest monsoon from about December to March brings much rain to Java. January is usually the wettest month. Rainfall varies from one part of the island to another. Jakarta has an average annual rainfall of about 1,778 millimetres (70 inches). Bogor receives about 4,216 millimetres (166 inches) a year. Rainfall is highest around the Slamet in Central Java. The driest area, in East Java, receives about 889 millimetres (35 inches).

The People

About two out of every three people in Java belong to the *Javanese* group. The Javanese live in Central Java and the western parts of East Java. The Javanese, like other Indonesian peoples, probably migrated originally from southern China. But Hindu culture that was introduced to Java later has strongly affected the language, arts, and religion of the Javanese. About one out of every four people in Java is a *Sundanese*. These cheerful, colourfully dressed people make up most of the population of West Java. The *Madurese* make up a large proportion of the population of north-eastern Java. These people probably went from Madura to fertile East

Java during the A.D. 1200s. People of Chinese, Arab, and Indian origin also live in Java. They own most of the shops in the large cities. Most of these families have been in Java for generations and feel themselves to be Indonesians. Many of them have changed their names to Javanese or Sundanese names. Traders, businessmen, and students from other parts of Indonesia work or study in Java.

Languages. A large proportion of the words of the Javanese language originated from the ancient Indian language of Sanskrit. But the Sanskrit words underwent a great change as they became part of the Javanese language. Javanese writing originated from the Hindu Pallawa script. Later, Arabic, Persian, Dutch, and Indonesian influenced Javanese.

The Javanese use three kinds of language, according to the social status of the person they are addressing. These languages are the *Ngoko* (low Javanese), the *Krama* (middle Javanese), and the *Krama Inggil* (high Javanese). The Sundanese language is similar in many ways to Javanese. It also has three kinds of language. The Madurese language is also closely related to Javanese, but it shows greater Arabic influence. Most people of Arab, Chinese, and Indian origin speak Indonesian. Many of them speak Javanese and Sundanese as well.

Village Life

The typical Javanese countryside consists of broad stretches of rice paddy alternating with small tree-covered islands of dry land where the houses are clustered together forming small villages. The fields are crisscrossed by paved roads and unpaved paths which lead to nearby urban centres.

The village, or *desa,* has been the smallest unit of social organization in Java since ancient times. Social organization has always been based on *gotong royong* (working together). In Java and Madura, these systems are now modernized and integrated into the civil administration.

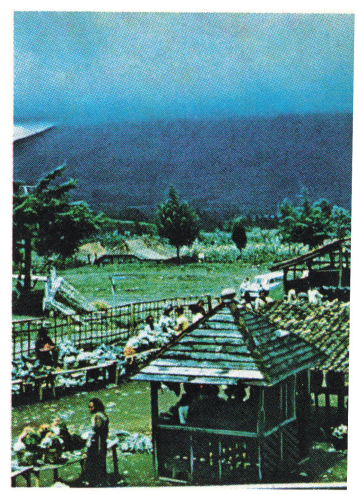
The villagers elect their own officials. Each village has a headman who is in charge of the other officials. Many villages also have elected councils, made up of such prominent members of village society as teachers, landholders, and Muslims who have made a pilgrimage to Mecca.

Men mainly control the village government. But some women become *dukun baji* (midwives) or *dukun prewangan* (mediums) and gain considerable influence in the village. In strict Islamic village communities women have only a subordinate role.

In some Javanese villages the villagers are strict Muslims, called *santri.* Other villages are made up of people who are only nominally Muslims. These people are called *abangan.* The nominally Muslim villages base many of their beliefs and folk customs on the legends and rules of behaviour of the Hindu religion. But most Javanese, except Christians, call on the *modin* (a village Islamic official) for assistance and blessing at times of births, deaths, and marriages. The modin is elected by his fellow villagers for life. Like all other village officials, such as the headman, the village secretary, and the irrigation official, he is paid by a grant of land from the village's communally-owned rice fields. The modin's duties include preparing corpses for burial and caring for graveyards. He checks that people who want to marry are legally free to do so, and also checks the legal rights of those who want a divorce and who want to re-marry. He gives advice on inheritance. He slaughters those animals that are required in religious feasts. He prays at *slametans* (village ritual feasts). He gives advice and comfort to people when close relatives die. He collects the religious tax; defends the faith of Islam against criticism; and sets a religious example to the village.

Photo Researchers

Javanese Farms produce much rice. Other important crops include maize, cassava, and soya beans.



Ron Witton

Javanese Villages are called *desa.* Their social organization is based on working together.

As a result of the increasing over-population of Java, there are more and more Javanese peasants who do not own any land. These peasants must work land owned by richer peasants and townspeople. Many of them receive only a small share of the harvest and as a result, there is increasing discontent in the country areas.

Javanese villagers have built up a close relationship to their immediate environment. The pace of the village is closely tied to the agricultural cycles of planting, weeding, and harvesting their crops, of which rice is by far the most important. Both men and women work in the rice fields. The prosperity of the village is closely linked to the size of the rice fields controlled by the village, and to the regularity of the wet and dry seasons that are vital to the agricultural activities of the village.

The importance of rice cultivation and the cycle of planting, growing, and harvesting rice is at the basis of many customs in Indonesian villages, especially those on Java and Bali. The village organization reflects the great co-operation needed to maintain the extensive irrigation systems. For example, in Javanese villages, the rice harvest ritual is built around the myth of two lovers—Tisnawati (female) and Jakasundana (male). They were turned into rice stalks by Tisnawati's wrathful father, Batara Guru, who was king of the gods. *Slametans* (ritual feasts) are traditionally held when land is first ploughed and when the rice is sown in the nurseries. Another feast takes place when the rice is transplanted into the fields 3 to 4 weeks later and when the rice begins to ripen several months later. The most important slametan is held when the actual harvest occurs about 4 months after first planting.

Farmers in Indonesia harvest the rice by hand because there is plenty of labour. They use a little knife which in Java is called the *anirani*. They hold the knife hidden in the palm of their hands because of the myth that the rice is the result of a love affair between the two transformed lovers. Many traditional farmers still apologize to the rice with a little prayer before actually cutting the stalks. In wet-rice cultivation areas, most village governments include a person whose job it is to co-ordinate the water irrigation systems. In Javanese villages he is called the *alu-alu*. This official is paid by being able to work some of the fields owned communally by the village.

The importance of rice to Indonesian society is reflected in the language. In English there are the words *wheat, flour* and *bread* corresponding to the stages of processing the main food eaten by English-speaking people. Indonesians have three names for rice: *padi* (growing rice), *beras* (uncooked rice), and *nasi* (cooked rice).

Western Java has abundant rainfall and extremely fertile volcanic soil. As a result, farmers can grow two and sometimes three crops of rice a year on the same piece of land. Central and Eastern Java have less rain and can grow only one crop of rice.

Growing rice in Indonesia is hard work. Farmers use ploughs pulled by water-buffaloes to prepare the fields for planting. They plant the rice seeds in special nursery beds. When the plants are about 152 millimetres (6 inches) high, the farmers put them by hand in the muddy slush of the paddies. When the grain is ripe, the farmers harvest the crop by hand, stack it and leave it to dry in the sun.

In addition to rice, the village produces a wide variety of fruits from the trees in the village. Many villages keep chickens, goats, and other animals for meat. They grow bamboo which is used to build houses. Bamboo pipes carry water for the houses and farms. In some areas of Java, the village agriculture depends on commercial crops such as tea and sugar. In many cases these crops are grown on plantations owned by large companies. For example, much tea is grown in the highlands of West Java and the villages around the tea plantations provide labourers. Many of the workers who pick the tea leaves at harvest time are women. In addition, many men and women from villages near plantations also work in tea and sugar factories.

Cultural Life

Arts of Java include performing the *wayang* (plays with shadow puppets and other types of puppets), performing *gamelan* (percussion) music, making *batik* (dyed cloth), dancing, and carving wood. Some local craft work is now made in factories. An example is the *payung* (umbrella) factory of Tasikmalaya, near Bandung. See ARTS OF INDONESIA, MALAYSIA, and SINGAPORE in this volume.

Religion. Most of the people of Java and Madura are Muslims. Most of the people of Arab or Indian origin are also Muslims. A large number of people, including many people of Chinese origin, are Christians. Some of the Tenggerese people of East Java call themselves adherents of *Buddha Tengger* (Tenggerese Buddhism). See RELIGION IN INDONESIA in the other Australasian volume.

The Work of the People

In the Country. About 60 out of every 100 square kilometres of land in Java and Madura is used as farm land to grow food. The most important product is rice, planted on irrigated rice fields, called *sawah,* or on non-irrigated fields, called *tegalan.* Maize is the second most important crop for domestic use. East Java and Madura are the greatest producers of maize. Cassava, soya beans, and peanuts are also grown. Kapok is produced in Central and East Java. Potatoes grow only in mountain areas. People also grow vegetables for domestic use. People grow tea, coffee, and tobacco in many areas, and sugar-cane in East Java. But these crops are not as important as the others.

Crops grown on plantations include tea, mostly grown in West Java; tobacco and sugar-cane, mostly grown in Central and East Java; and coffee, mostly grown in East Java.

Farmers in East Java and Madura keep water-buffaloes and cows for use in farm work. People also use cows to pull wooden carts for carrying rice or other agricultural products in country districts.

Java has oil wells on the northern coast to the east of Jakarta, near Surabaya, and on the northern coast to the east of Surabaya. Mines include gold and sulphur mines in West Java, and manganese and phosphate mines along the southern coast.

In the Towns. Jakarta, the capital of Indonesia, has many light industries. Factories manufacture chemicals, domestic appliances, electrical goods, and shoes. Jakarta is the most important commercial centre in Indonesia. It has the headquarters of major trading corporations, banks, and insurance companies. Bogor, about 60 kilometres (37·5 miles) south of Jakarta, is a centre of trade, weaving, and textile manufacture. It also has a tyre factory.

Bandung, the capital of the province of West Java, has one of the largest quinine factories in the world. It also has factories that process rubber, sisal, tapioca, and tea. Engineering workshops for the rail and postal services are located in the city. Bandung also has an ammunition factory and a plant for manufacturing and maintaining aircraft.

Semarang is the capital of the province of Central Java. It is an important port. It has textiles, machinery, glass, shoe, and electrical equipment industries.

Surabaya is the second largest city of Indonesia and the capital of the province of East Java. It is an important centre of trade and commerce and is the main naval base of Indonesia. Much of Surabaya's commercial and industrial activity is linked with farm production in the surrounding area. Several large factories in and around the city refine sugar and process iodine, petroleum, and sulphur. Surabaya's port, Tanjung Perak, handles the products manufactured in the city and also the salt extracted from sea water on the nearby island of Madura. Many people work in the large docks and shipbuilding yards.

Things to See and Do

Tourists can reach Java by regular air and shipping services to Jakarta. Things to see in Jakarta include the *pasar ikan* (fish market) on the waterfront. Many visitors go to see the aquarium there. The Museum of Jakarta is famous for its collection of Indonesian arts and crafts. The *Premandangan laut* (sea view) yacht club is a popular beach resort.

Bogor's famous botanical gardens cover 111 hectares (275 acres) and contain about 10,000 species of plants. Semarang's most beautiful residential suburb is Candi. It looks out over the Java Sea.

In Yogyakarta, many people visit the sultan's palace, the *Taman Sari* (water palace), and the Sono-Budaya Museum with its Hindu-Javanese statues.

Many people visit the Buddhist temple of Borobudur, near Yogyakarta. This huge temple was built at the end of the A.D. 700s. See ARCHITECTURE (picture) in this volume.

The Hindu temples at Prambanan, near Yogyakarta, were built during the A.D. 800s. The temples have been reconstructed, and from May to September, actors perform Hindu epics in an open-air theatre there.

History

Scientists have found the remains of a number of early forms of man in Java. The most important are Java Man, which may be as much as 500,000 years old, and Solo Man, which is about 50,000 years old. See JAVA MAN in the main volumes.

Malay peoples migrated to Java from the Asian mainland between about 2500 B.C. and 100 B.C. Indian ideas and religions influenced them greatly from about the beginning of the A.D. 400s to the 1400s. During the 700s, the Buddhist Sailendra kings came to power in Central Java. Their power declined during the 800s. The Hindu-Javanese kingdom of Majapahit was founded in East Java in 1293. During the 1300s, it expanded its power and claimed to control the whole of the area that is now Indonesia. During the 1400s, traders introduced Islam, which had already spread to northern Sumatra. The religion spread rapidly on the northern coast of Java. The power of the inland kingdom of Majapahit declined as the Muslim states of Java's northern coast became more powerful. During the 1500s, the Muslim kingdom of Mataram was established in the area that is now Yogyakarta.

From the 1600s onwards, the Dutch gradually established control over Java. Many Javanese leaders opposed them unsuccessfully. For example, Diponegoro, a prince of Central Java, led his people in the Java War from 1825 to 1830. During the early 1900s, the Indonesian people began to establish organizations that sought freedom for Indonesia. In 1908, the first of these organizations appeared.

The Japanese occupied Java and the other islands of the Dutch East Indies during World War II. In 1945, two leaders, Sukarno and Mohammad Hatta, proclaimed the independence of Indonesia. Java was the centre of the struggle. The Dutch acknowledged Indonesia's independence in 1949.

Related Articles in the Australasian volumes include:

CITIES AND TOWNS

Bandung, Jakarta, Malang, Mojokerto, Pasuruan, Pekalongan, Salatiga, Semarang, Surabaya, Surakarta, Tegal, Yogyakarta

PHYSICAL FEATURES

Lawu, Madura, Penanggungan, Solo, Sumbing, Sundoro, Tengger Range

UNCLASSIFIED

Architecture, Arts of Indonesia, Malaysia and Singapore, Education in Indonesia, Government of Indonesia, History of Indonesia, Legends, Rice Growing, Theatre

JAYA PEAK is Indonesia's highest mountain. It rises to a height of 4,951 metres (16,503 feet) above sea level in Irian Jaya (Indonesian New Guinea). For location, see NEW GUINEA (map) in the main volumes. The range in which the peak is located has two other peaks more than 4,500 metres (15,000 feet) high. Jaya Peak was called Mt. Carstenz until West Irian came under Indonesian rule in 1963. The name was then changed to Mt. Sukarno. Later, it was changed to Jaya Peak. A Dutch expedition first climbed the peak in 1936.

JAYABAYA (? -1157) ruled over the Hindu Javanese kingdom of Kediri from about 1135 to 1157. He conquered the kingdom of Janggala. Jayabaya is famous for supposedly prophesying that a white race would subject the Indonesian people for a long period until a yellow race from the north drove them out. The Indonesians took his prophecy to refer to the Dutch and the Japanese.

JAYAPURA (pop. 14,462) is the capital and largest town of the Indonesian province of Irian Jaya. It used to be called *Sukarnapura,* and before that it was called *Kotabaru.* When the Dutch ruled the area, they called the town *Hollandia.* Jayapura lies on the northern coast of Irian Jaya near the border of Papua New Guinea.

The town stands on steep hills overlooking its picturesque harbour. The port handles much of the trade of Irian Jaya. The People's Representative Council of Irian Jaya meets in Jayapura, which is the administrative centre of the province. Irian Jaya's university, the Cenderawasih State University, stands near the beautiful Lake Sentani, to the south of the town.

JENOLAN CAVES are limestone caves in the Main Range, about 160 kilometres (100 miles) by road west of Sydney, in New South Wales. They are famous for their spectacular limestone formations, including stalactites and stalagmites. The formations become translucent and emit a brilliant glow when moistened with water. The chief caves are Lucas, Right Imperial, Left Imperial, and Orient.

The caves are popular with tourists. An area of about six square miles around the caves is a state government reserve. The government has provided facilities in the caves, such as paths, steps, and concealed lights, to enable visitors to see the formations safely and to the best advantage. Tourists can relax and enjoy refreshments at Cave House, a government-owned hotel.

See also New South Wales (colour picture) in the other Australasian volume.

JERILDERIE (pop. 988) is a small town in New South Wales. It lies 650 kilometres (406 miles) by road from Sydney. The bushranger Ned Kelly and his gang raided the town in 1879. They robbed the bank of more than £ 2,000 and remained in the town for several days. Ned Kelly tried unsuccessfully to find a publisher for an 8,000-word manifesto known as *the Jerilderie Letter,* in which he aired his grievances.

JERVIS BAY is an inlet on the coast of New South Wales, in Australia. The Australian federal government owns the bay and an area of 73 square kilometres (28 square miles) around it. The Australian navy uses the bay as an anchorage for its vessels. In 1915, New South Wales gave control of the area to the federal government as a port for the Australian Capital Territory.

In 1969, the Australian federal government announced that a 500-megawatt nuclear power station would be built on federal territory at Jervis Bay. The station was scheduled for completion by the end of 1975 and its output was to be fed into the New South Wales electricity grid. Tenders were called in 1970, but in 1971 the minister for national development announced that the government had decided to defer a decision on the station.

JERVIS BAY was an armed merchant cruiser which encountered the German pocket battleship *Admiral Scheer* while escorting a convoy of 37 ships across the North Atlantic on Nov. 5, 1940, during World War II. Undaunted by *Scheer's* superior fire power and speed, *Jervis Bay* made straight for the enemy. The unequal battle soon ended and the crippled and burning *Jervis Bay* sank. But her sacrifice enabled all except five of the ships in the convoy to escape. Her captain, Fogarty Fegan, went down with his ship. After his death, he was awarded a Victoria Cross.

Jervis Bay was launched in 1922 and used on the London-to-Australia run until the British Admiralty took it over in 1939 and converted it into an armed merchant cruiser.

JET BOATS are small craft that are propelled by jets of water pumped at a high velocity through a nozzle at the stern. An internal combustion engine sucks water through a grille situated amidships in the boat and then pumps the water in a jet stream through an elbow-shaped nozzle out through the transom, above the waterline. Jet boats are especially suitable for use in shallow water, such as fast-flowing, narrow rivers. They have navigated the rivers of Nepal, and, in the United States, the rapids of the Colorado River. The marine jet engine that powers modern jet boats was invented and developed by William Hamilton, a New Zealand engineer and farmer. He tested his first jet boats in the fast-flowing rivers in the foothills of New Zealand's Southern Alps. He patented his invention in 1955.

JEWFISH, also commonly known as *mulloways,* are important food fish, much sought after by commercial and amateur fishermen in Australia. They can grow to a large size. Some specimens weighing more than 45 kilograms (99 pounds) have been recorded. They live in all states in a variety of places such as deep reefs, surf beaches, and estuaries. They are often found far up rivers to the limits of tidal influence. They eat mainly small fish, squid, and shellfish.

Scientific Classification: Jewfish belong to the family *Sciaenidae* and the genus *Sciaena.* They are species *S. antarctica.*

JINDABYNE (pop. 704) is a tourist resort in the Snowy Mountains area of New South Wales. It lies 470 kilometres (294 miles) by road from Sydney and 58 kilometres (36 miles) from Cooma. In winter, parties of skiers stay in the town's hotels and motels. In summer, many people visit the town to fish on Lake Jindabyne.

JINDIVIK is a remote-controlled jet aircraft, designed and produced in Australia under the government's defence research programme. It is used in target practice for unarmed guided missiles and as a tug for other targets. It can travel at heights of up to 20,000 metres (65,000 feet), and can be used for about 60 flights. Britain, Sweden, and the United States have bought considerable numbers of these aircraft for use in their defence training programmes.

JINDYWOROBAK was a nationalistic Australian literary movement. *Jindyworobak* is an Aboriginal word meaning *to annex* or *to join*. The movement's founder, Rex Ingamells (1913-1955), believed that Australian culture must be based upon an understanding of Australian history and tradition, including those of the Aborigines. The poets of this movement sought symbols and allusions from Aboriginal culture. Foremost among them was Roland Robinson, who wrote *Tumult of the Swans* and *Deep Well*. Robinson collected Aboriginal tales in *Legend and Dreaming* and *Black-feller, White-feller*.

JOHN DORY is a short deep-bodied fish with a characteristic large black spot on each side. It is widely distributed in both northern and southern hemispheres and occurs off all Australian states except the Northern Territory and perhaps Queensland. It usually occupies deep water. It is one of Australia's finest eating fish and is much sought-after in the trawling industry. It feeds largely on small fish and has an extensible mouth that can be protruded at great speed. Specimens have been recorded over 61 centimetres (2 feet) in length but the average size of the commercial catch is less than 30 centimetres (12 inches).

Scientific Classification. John Dories belong to the family *Zeidae*. They are species *Zeus faber*.

JOHNSON, AMY (1903-1941), was the first woman to make a solo flight from England to Australia. She made her daring flight in 1930. It took 19½ days. She made many other record-breaking trips, including a flight to Japan (1931), to Cape Town in South Africa (1932), and, with her husband James Mollison, to Karachi (1934).

Amy Johnson was born in Hull, and studied at Sheffield University. She was drowned after bailing out from an aeroplane over the Thames estuary.

JOHNSON, IAN (1918-), an Australian off-spin bowler and batsman, captained Australia in 18 test matches against England, India, Pakistan, and the West Indies. In all, he played for Australia in 45 test matches, taking 109 wickets and scoring more than 1,000 runs. His test bowling average was 29·19 runs a wicket. His best bowling performance was 7 wickets for 44 runs, against the West Indies at Georgetown in 1955. At the height of his career, he was a fine off-spinner and a master of flighting the ball through the air. He was born in Melbourne and named IAN WILLIAM JOHNSON. In 1957, he became secretary of the Melbourne Cricket Club.

Richard Johnson
The Mitchell Library

JOHNSON, RICHARD (1753-1827), was the first clergyman in Australia. He arrived as army chaplain with the First Fleet (see HISTORY OF AUSTRALIA [The First Fleets] in this volume). Soon after his arrival in Sydney, he quarrelled with Arthur Phillip, the governor (see PHILLIP, ARTHUR, in the other Australasian volume). Johnson wanted to build a church, but Phillip did not think that the new colony urgently needed one. Johnson then set about building one at his own expense. He completed it and held the first service in it in August, 1793. But the church was destroyed by fire in October, 1798.

Johnson was born at Welton, near Hull, in Yorkshire, England. From 1788 until the arrival of Samuel Marsden in 1793, he was the only clergyman in the colony (see MARSDEN, SAMUEL, in the other Australasian volume). Johnson founded the first schools in Australia.

JOHNSTON, BILL (1922-), was one of Australia's greatest bowlers. He could bowl both medium-paced and leg-spin deliveries effectively. He was born at Beeac, in Victoria, and named WILLIAM ARRAS JOHNSTON. He became a leading bowler during the period from 1946 to 1950, when Australia was the world cricket champion. He would often bowl a few overs at medium pace before switching to leg-spinners. Johnston played in 40 test matches, taking 160 wickets, 75 of them against England. His best bowling performance was 6 wickets for 44 runs, against South Africa at Johannesburg in 1960. During the Australian tour of England in 1948, he caused much amusement by topping the batting averages with an average of 97 runs. He hit a total of 97 runs in the tour, but was out only once.

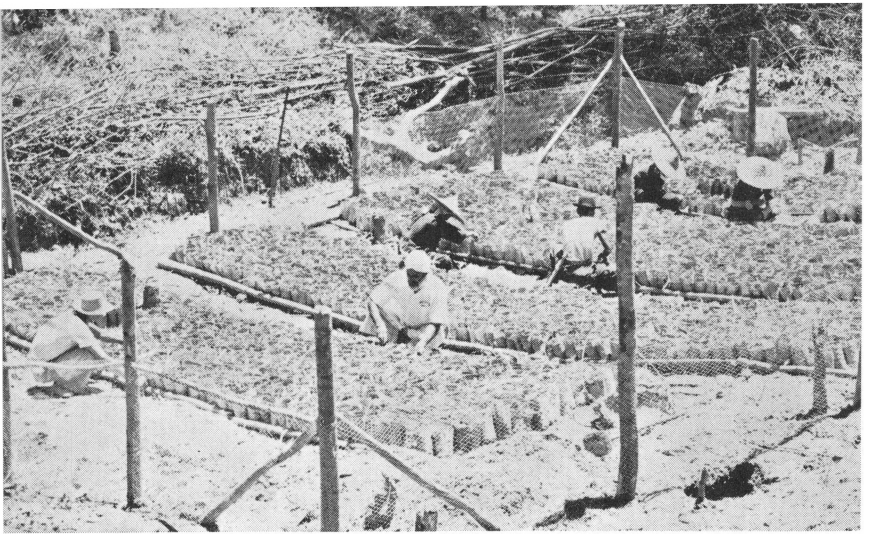
JOHNSTON, GEORGE HENRY (1912-1970), an Australian novelist, wrote *My Brother Jack,* which won the Miles Franklin Literary Award in 1964. Johnston wrote three books in collaboration with his wife, Charmian Clift—*High Valley* (1948), *The Big Chariot,* (1953), and *The Sponge Divers* (1955). *High Valley* won the *Sydney Morning Herald* Australian novel contest in 1948. He also wrote mystery fiction and the text to accompany Robert Goodman's photographs in *The Australians* (1967).

Johnston's other books include *Grey Gladiator* (1941); *New Guinea Diary* (1943); *The Darkness Outside* (1959); *Closer to the Sun,* which won the United States Literary Guild Award in 1960; *The Far Road* (1962); and *Far Face of the Moon* (1965).

My Brother Jack appears to be an autobiographical novel. It is a powerful reconstruction of Melbourne following World War I. The narrator, David Meredith, recalls his beginnings with a mixture of irony and nostalgia and analyses his relationship with his brother. The characterization is brilliant, and the construction of the novel is excellent.

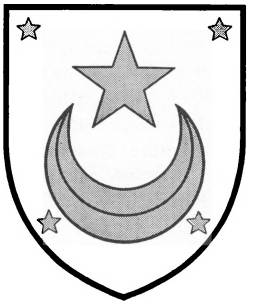
Clean Straw for Nothing (1969), the successor to *My Brother Jack,* takes narrator Meredith to Europe. In this book, Johnston examines the problems of the creative artist everywhere and the expatriate Australian in particular. The third book in the trilogy was *A Cartload of Clay* (1971).

Johnston was born at Malvern, in Victoria, and educated at Brighton Technical School and the National Gallery Arts School in Melbourne. During World War II, he was a war correspondent in New Guinea in 1942 and 1943 and in Italy, Burma, and China in 1944 and 1945. He lived overseas for 15 years after the war, including 9 years spent on the Greek island of Hydra.



Malaysian Information Services

Rubber and Pineapples contribute to the prosperity of Johor. Rubber, *left,* grows on about 223,000 hectares in the state—a larger area than in any other state in Malaysia. Pineapples, *right,* grow on more than 9,710 hectares in Johor.



JOHOR is a large state at the southern tip of the Malay Peninsula in Malaysia. It covers an area of 18,985 square kilometres from the Strait of Malacca to the South China Sea. For location, see MALAYSIA (colour maps) in the other Australasian volume. Only a few farmers and fishermen live in the eastern districts of Johor. Most people live in the state's western districts, where they work on large plantations producing rubber, coconuts, and palm oil.

The Land in most parts of Johor is low-lying, with gently sloping hills. The highest mountain in the state is Mount Ophir (1,276 metres above sea level), in the north-west. It has a strange triple summit that many people view with awe. According to legend, angels guard the mountain's slopes. Other isolated mountains, such as Besar and Blumut, rise to more than 910 metres from lowland areas in the centre of the state. The western coastal plain of Johor has been cleared and drained for farming. The eastern coast of the state is a region of swamp-filled valleys separated by low hills.

The short Johor River has a broad estuary opening into the Johor Strait, which separates the mainland of the Malay Peninsula from the island of Singapore. A causeway across the strait, built in 1923, links Johor with Singapore by road and rail, and also carries large water pipes from the Pulai and Tebrau rivers of Johor.

The People and Their Work. Johor has more than 1 million people. Of every 100 people in the state, about 50 are Malays, 41 are Chinese, and 7 are Indians. The Malay community includes descendants of people from Malacca, Java, Sulawesi, and Sumatra, together with *Orang Laut,* an older racial group of Malays.

Johor has nearly 607,000 hectares of agricultural land—more than twice the farmland of any other state in Malaya. Most farmers grow commercial crops. Large estates, consisting of plantations of rubber trees and oil palms, occupy more than 40 per cent. of the farm lands. Smallholders cultivate mainly rubber trees and coconut palms. They grow only a little rice.

Nearly a quarter of Johor consists of forest reserves, and the state has a thriving timber industry. It has few mineral resources. Miners at Tanjong Ramunia, in south-eastern Johor, produce bauxite. Some small firms mine meagre deposits of tin in the Mersing district. In southern Johor, several light industries have been established near the state's capital city, Johor Baharu. They include biscuit and tapioca factories, pineapple canneries, palm-oil mills, and light-engineering works.

Things to See and Do. Johor Baharu has excellent hotels and restaurants that provide fine views across the Johor Strait. There are magnificent waterfalls at Kota Tinggi, to the north-east of Johor Baharu, and many visitors enjoy swimming in the natural pool at the base of the falls. Jason Bay, on Johor's eastern coast, has several good surfing beaches. At Johor Lama, on the Johor River, archaeologists have unearthed many relics of the days when the city was a thriving port and the royal capital of Johor.

History. A Javanese poem lists Johor as one of the dependencies of the Javanese Majapahit empire in the 1300s. During the 1400s, Johor became an important part of the area ruled by the sultans of Malacca. When the Portuguese captured Malacca in the early 1500s, its sultans established a new capital at Johor Lama. After disastrous wars in the 1600s and 1700s, the sultans moved to islands in the Strait of Singapore in search of a more secure base. They left behind an official, called the *temenggong,* to govern Johor. In 1819, the Temenggong granted Singapore to the British East India Company. His descendants adopted the title of sultan of Johor.

They were given British protection. The sultans of Johor succeeded in retaining more independent powers than other rulers in Malaya because of their strong personalities. In the early 1900s, the economy of the state improved greatly because of the development of rubber plantations. The population of Johor doubled between 1911 and 1921.

Related Articles in the Australasian volumes of WORLD BOOK include:

Fruit Growing	Malacca
History of Malaysia	Mount Ophir
Johor Baharu	Rubber Production
Johor Strait	Singapore

JOHOR BAHARU (pop. 135,936) is the capital of Johor state and is the fourth largest town in Malaya. It stands on the southern tip of the Malay Peninsula, facing the island of Singapore across the Johor Strait, about 23 kilometres north of Singapore city. For location, see MALAYSIA (colour maps) in the other Australasian volume.

The town is an important trading centre for farmers in the surrounding countryside, and many of the town's industries are concerned with processing the agricultural products of Johor state. Johor Baharu has factories that remill rubber, process rubber latex, and manufacture rubber shoes. Other factories serve the timber industry. The town has several sawmills and furniture-making factories. In addition, Johor Baharu has pineapple canneries, biscuit factories, and mills for extracting palm oil and coconut oil. The town is linked by road and rail with Singapore, with Kuala Lumpur, and with other important cities in western Malaya.

Johor Baharu is an attractive town with many tree-lined avenues and gardens with decorative waterfalls. A modern block of government offices, built in the form of a square tower, stands on a hill overlooking the Johor Strait. Visitors to the building can enjoy panoramic views over Singapore and the small islands that surround it. Other interesting buildings in the town include the Bukit Serene Palace, which is the residence of the sultans of Johor; the Istana Besar, the sultans' former residence; and the elaborate Abu Bakar Mosque. The town also has one of the largest and most modern hospitals in Malaysia. It is a centre for training nurses.

Chinese form the largest racial group in Johor Baharu, as in most other towns in western Malaya. But Johor Baharu also has many Malays. Of every 100 people in the town, 44 are Chinese, 38 are Malays, and 9 are Indians. The population of Johor Baharu doubled between 1947 and 1957 because many people were attracted to new light industries that were established in the town.

Johor Baharu was founded in the 1850s. The town was originally called Tanjong Putri, but was given its present name in 1866.

JOHOR STRAIT is a narrow channel separating the Malay Peninsula from the island of Singapore. It is about 56 kilometres long and less than two miles wide for most of its length. Many small rivers flow into it, creating wide estuaries filled with mangroves. A causeway across the strait was completed in 1923, linking Singapore by road and rail with Malaya. The main naval base of Singapore is located in the strait.

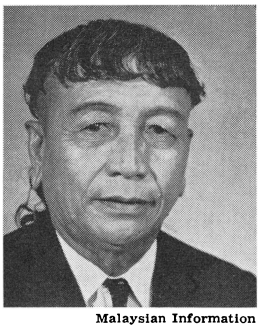
JORGENSEN, JORGEN (1780-1841), was a Danish adventurer, gambler, and pioneer whose adventures finally led him as a convict to Van Diemen's Land (now Tasmania). Leaving Europe in the late 1790s, he reached Cape Town in 1798, landed in Australia in 1800, and arrived in Sydney in 1801 on the ship *Harbinger*. In 1809, Jorgensen took a merchant ship to Iceland, then governed by Denmark, and arrested the Danish governor. He sent notice to the British government that he had annexed Iceland for Britain. The government refused to recognize his act. Meanwhile, Jorgensen ruled as a self-appointed king. Two months later, a British naval officer arrested him and restored the legal Danish government.

During the next few years, Jorgensen spent many months in prison because of bad debts. In 1820, he was sentenced to transportation for life for a petty crime. He landed in Van Diemen's Land in April, 1826. He soon received his pardon, after solving a crime concerning the theft of £4,000. He became a constable, then editor of a local newspaper. He also became an authority on the Tasmanian Aborigines (see TASMANIAN ABORIGINES in the other Australasian volume). He was born at Copenhagen.

JOYCE, EILEEN (1912-), an Australian pianist of outstanding technical brilliance, became a popular concert artist in many countries. On her concert tours, she sometimes played several well-known concertos at each concert. She also earned a reputation as an accomplished performer on the harpsichord. In addition to performing in concerts, she appeared in films. She was born in Tasmania, studied music in Leipzig, and later settled in London.

The Mitchell Library

Jorgen Jorgensen



Malaysian Information

Jugah Anak Barieng

JUGAH ANAK BARIENG, DATU TEMENGGONG (1903-), paramount chief of the *Ibans* (Sea Dyaks) in the third division of Sarawak, was appointed minister of Sarawak affairs in the Malaysian government in the early 1960s.

Jugah was born in the third division of Sarawak and educated at local schools. In 1926, he was appointed *penghulu* (chief) of the Merirai area. He was appointed *temenggong* (paramount chief) of the Ibans in 1955. In 1962, Jugah founded the Party Pesaka Anak Sarawak, and organized support for the proposal that Sarawak should join the federation of Malaysia. In 1963, he became chairman of the Alliance coalition of parties in Sarawak.

KAHAR MUZAKKAR (1915?-1965) led soldiers in southern Sulawesi against the Dutch before Indonesian independence. Afterwards, he continued to lead a band of guerrillas against the Indonesian central government until he was killed. He controlled large areas in Sulawesi and received support from the local people. He joined forces with Darul Islam, a guerrilla movement that unsuccessfully fought for an Islamic state. Kahar Muzakkar was born in southern Sulawesi.

KAIKOURAS are two parallel ranges of mountains in the north-eastern part of the South Island of New Zealand. The Clarence River flows parallel to the Kaikouras between their eastern and western arms. The eastern arm of the Kaikouras is known as the *Seaward Kaikouras*. Some geographers refer to the western arm as the *Inland Kaikouras*. Mt. Tapuaenuku (2,885 metres or 9,465 feet above sea level), the highest peak of the Kaikouras, rises in the northern section of the western arm of the ranges.

KAIMANAWAS are a range of mountains to the south of Lake Taupo in Wellington province in the central part of the North Island of New Zealand. They form a western branch of the main group of mountain ranges that extend across the island from north-east to south-west. The Kaimanawas rise to about 1,980 metres (6,500 feet) above sea level. The slopes are covered with tussock growth and with forests of beech trees. Many game-hunters are drawn to the area to stalk deer.

KAINGAROA is an area of plains and forest in the North Island of New Zealand. The plains extend northwards and eastwards from Lake Taupo. A large forest of pine trees, planted for timber and pulp and paper, covers much of the area. The plains are formed of *pumice* (lava from volcanoes). Until the pine trees were planted, only tea-trees and ferns grew in the poor soil. Many deep gorges cut through the plains. In 1925, Maori rock drawings were discovered about 13 kilometres (8 miles) from Murupara.

KALGOORLIE (pop. 20,784), a town in Western Australia, is the centre of Australia's chief gold-field. Each year the gold-field produces gold worth approximately $A 14 million. Kalgoorlie stands in an arid region about 604 kilometres (375 miles) east of Perth. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume.

Water is pumped into this arid country from Mundaring Weir, 560 kilometres (350 miles) away. Kalgoorlie is self-supporting as far as shops and general requirements are concerned, because it is located so far from the more closely settled areas of the state. The people of Kalgoorlie are extremely interested in sports. The town has 40 clubs for their activities. It also has at least nine societies for those interested in gem stones, local history, repertory, chess, and so on. The town has state and private primary and secondary schools, with a technical school and, at tertiary level, a school of mines with a residential college. Light metal industries manufacture mine machinery parts.

Patrick Hannan, Thomas Flanagan, and Dan Shea first discovered gold in the region in 1893. A gold rush followed, and more than 1,400 miners arrived in the area in one week. A settlement soon grew up, and was originally named Hannans. It was proclaimed a town and named Kalgoorlie in 1895. The town developed rapidly after the completion of the Mundaring Weir in 1898.

Australian News and Information Bureau

Kalgoorlie is still a prosperous town. The newest gold-mine, Mount Charlotte Mine, began production in 1964. It stands near Kalgoorlie's shopping centre.

V. J. Maratea

People of Dyak Tribes make up most of the population of the isolated central parts of Kalimantan.

KALIMANTAN, in Indonesia, is the southern part of the island of Borneo. It occupies three-quarters of Borneo, which is the third largest island in the world. Most of Kalimantan, which is divided into four provinces, is underdeveloped and thinly populated. It has only about 4 million people, most of whom live in the coastal regions. Dense tropical jungle covers much of the interior. Overland travel is almost impossible in these regions. The great rivers provide the only means of transport.

The Land

Location and Size. Kalimantan lies north of Java, east of Sumatra, and west of Sulawesi. The Celebes Sea and the Strait of Makasar border it in the east, the Java Sea borders it in the south, and the South China Sea and the Karimata Strait border it in the west. The Malaysian states of Sabah and Sarawak border Kalimantan in the north. For location, see INDONESIA (colour maps) in this volume. The Equator divides Kalimantan into two almost equal parts. Borneo has a total area of nearly 754,000 square kilometres (290,000 square miles), of which Kalimantan makes up nearly 546,000 square kilometres (210,000 square miles).

FACTS IN BRIEF

Provincial Capitals: Samarinda (East Kalimantan), Banjarmasin (South Kalimantan), Palangka Raya (Central Kalimantan), Pontianak (West Kalimantan).

Largest Towns: Banjarmasin, Pontianak, Balikpapan, Samarinda.

Area: 541,544 square kilometres (208,286 square miles).

Population: 4,101,475.

Chief Products: Birds' nests, cassava, coal, copra, gold, maize, pepper, petroleum, rattan, rice, rubber, sago, teak and other hardwoods, tobacco, vegetables.

Land Features. Kalimantan is part of the mass of ancient rocks that also makes up the Malay Peninsula. It does not have such high peaks as the rest of Indonesia, and has no volcanoes. Most of southern and western Kalimantan is low-lying and swampy. The central and eastern parts are mountainous.

The Schwaner mountains, to the west, rise to 2,242 metres (7,474 feet) above sea level at Mount Raya. To the north, the Kapuas Hulu (Upper Kapuas) range lies along the border between Kalimantan and Sarawak. The frontier extends along its ridge, and along the ridge of the Iran mountains, farther east. The Madi plateau divides the Schwaner and Kapuas Hulu mountains. To the east of the plateau lies the Müller range, which has many peaks between 1,200 and 1,500 metres (4,000 and 5,000 feet) high. Farther east, the Bulungan, Sambaliung, and Tabur ranges extend from the central mountains to the coast.

Rivers. The most important rivers of Kalimantan flow from the central mountains across wide plains. Many of the river basins are marshy, and the major rivers empty through large deltas. The Kapuas is more than 1,120 kilometres (700 miles) long, and is the longest river in the whole of Indonesia. It rises in the Kapuas Hulu mountains and empties into the South China Sea almost at the Equator, near the city of Pontianak. Small steamships can use the river for about 640 kilometres (400 miles) from its mouth. The Barito is about 720 kilometres (450 miles) long. With its tributaries, it drains an area of nearly 104,000 square kilometres (40,000 square miles) of south-eastern Kalimantan. The third major river is the Mahakam, or Kutai. It is about 840 kilometres (525 miles) long, and flows into the Strait of Makasar.

Climate. Kalimantan has a hot and damp equatorial climate. The temperature varies little from the average of 27° C (80° F) at any time of the year. Much rain falls in all areas, and the average is about 3,810 millimetres (150 inches) a year. More than 5,080 millimetres (200 inches) falls in some parts. In many places, torrential thunderstorms occur almost daily. Kalimantan has no true dry season, but some times of the year are wetter than others. The eastern coast is the driest part.

Plants and Animals. Kalimantan's great rainfall results in luxuriant vegetation. Tall, evergreen, tropical rain forest covers much of the land. A wide variety of trees and ferns grow there. Many of them grow only in Borneo. Kalimantan also has swamps of mangroves, palms, and other vegetation. It has few areas of open savanna. Flowering plants include orchids, pitcher plants, and rhododendrons.

The forests teem with animal life. Orang-utans live in the lowland regions. Other animals of Kalimantan include crocodiles, deer of various

kinds, elephants, gibbons, leopards, proboscis monkeys, rhinoceroses, and wild pigs. The people fear the small honey bears, which can inflict serious injuries with their powerful teeth and claws. Bantengs are a kind of wild oxen. They are slim, dark brown animals that can run fast. More than 600 species of birds live in Kalimantan.

The Life of the People

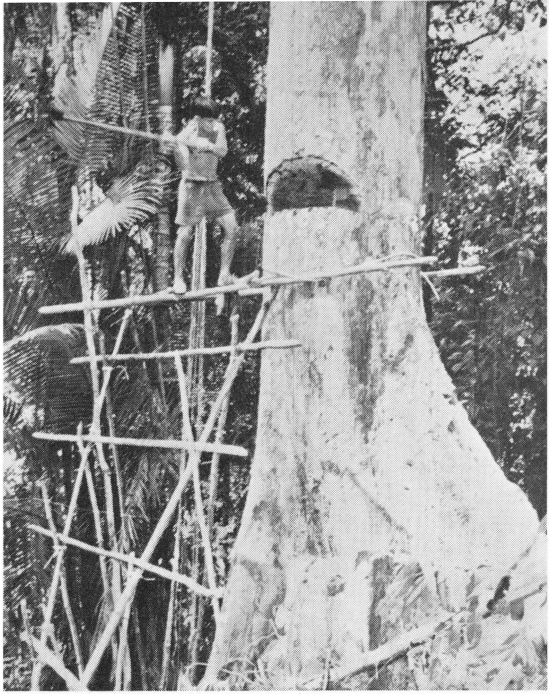
Most of the people of Kalimantan live in or around the major coastal cities and towns, and in the river basins of the south and west.

The Coastal Malays are the largest *ethnic* (racial) group in Kalimantan. They originated in eastern Sumatra. They are good sailors, and have settled in the coastal regions and river basins of Kalimantan. They are Muslims. In many coastal towns, they build houses on piles over the rivers. Some people call the Malays living around Banjarmasin, in southern Kalimantan, *Banjarese*.

People of more than 50 ethnic groups live in the interior of Kalimantan. They are generally grouped together as *Dyaks*. They are primitive people who lived in the coastal areas before the Malays arrived. Many of them still live in *longhouses,* which may each accommodate as many as 500 people. Dyaks cultivate the land, but do not remain long in one place. Many Dyaks follow local religions involving nature worship and ancestor worship, but Christian missionaries have converted some of them. See DYAKS in this volume.

Many Chinese have settled in Kalimantan, especially on the western coast. They now make up nearly a tenth of the population. In Pontianak, about 60 out of every 100 people are Chinese.

The people of the coastal regions produce most of the art and craftwork of Kalimantan, but the Dyaks make glazed pots and jars. The Malays make various articles from crocodile and python skins for export. People in many parts of Indonesia use wickerwork articles from Kalimantan, many of which are dyed in bright colours.



Valuable Hardwoods grow in Kalimantan's thick tropical jungle. Men cut them and float the logs down the rivers.

The Work of the People

Kalimantan has abundant natural resources, but they are largely undeveloped. The people grow rice in the river basins to supply themselves with food.

The Broad Rivers of Kalimantan provide the only easy way to travel through the dense jungle of the interior. Steamships can sail for hundreds of miles up the largest rivers.

They also eat sago from wild sago palms, maize, cassava, and vegetables. They rarely stay in one place for long, but practise *shifting cultivation.* They cut down the natural vegetation of a hillside, burn it, and grow the rice in the ash. The Indonesian government plans to develop irrigated rice fields, using water from the rivers, so that Kalimantan can produce rice for other parts of Indonesia.

The land in the mountainous interior of Kalimantan is not particularly fertile, because there is no volcanic soil. But farmers have begun to grow some cash crops, such as pepper. Pepper is grown around Pontianak. Tobacco flourishes in the central highlands. Coconut palms, a familiar sight in the coastal regions, bring income from the production of copra. The people get *rattan* (a kind of cane) from the jungle. They cut about 60 kinds of useful timber, including teak, in the forests. They float it down the rivers to the coast. Much rubber is produced in the Kapuas and Barito river valleys, and Kalimantan produces about one tenth of Indonesia's rubber exports. Other jungle products include dammar gum and spice woods. People of the Malay Archipelago, especially the Chinese, make soup from the nests of swifts living in Borneo's limestone caves (see BIRD'S-NEST SOUP in the main volumes). The Chinese also prize the horns, hoofs, and hides of rhinoceroses. They use them to make medicines.

Kalimantan has great mineral wealth. Gold is mined in the mountains of the western, central, and southern regions. Diamonds are found in gravel deposits in south-eastern and western Kalimantan. The eastern coast has large deposits of coal and oil. The major oil-fields are at Tandjung, in the south, and on the off-shore islands of Bunyu and Tarakan, in the north-east.

The major cities, such as Pontianak and Banjarmasin, lie close to river-mouths. They are chiefly important as trading ports and commercial and administrative centres. Boats bring produce down the rivers from the interior for export. Kalimantan has little industry, except that connected with oil drilling, oil refining, and mining. Banjarmasin and Pontianak have factories that process rubber.

History

People throughout eastern Asia have known about Kalimantan since the earliest times. Chinese ceramics of the Han dynasty found in eastern Kalimantan show contact with China in the first hundred years A.D. In Kalimantan, archaeologists unearthed some of the oldest Sanskrit inscriptions found in Indonesia. These inscriptions originate from a Brahmanist kingdom in eastern Kalimantan, and date back to the early A.D. 400s. They show that the region also had contact with India. In the 600s, trade developed with China, mainly in pearls and birds' nests for soup.

Islam spread to southern and western Kalimantan through Arab traders. The Dutch helped the foundation of a strong sultanate of Banjarmasin in the early 1600s. They had gained complete control of Kalimantan by 1905. During World War II, the Japanese army overran Kalimantan after heavy fighting.

See also BANJARMASIN in this volume.

KAMBALDA (pop. 4,209) is a town in Western Australia about 56 kilometres (35 miles) south of Kalgoorlie. It is the centre of extensive nickel-mining activities. The first township of Kambalda was established in 1897 after gold was discovered at Red Hill. But when gold production declined, the town became deserted. Then two prospectors collected rock samples in 1947 that, when tested in 1954, revealed the presence of nickel. The findings were referred to a mining company and nickel sulphides were discovered after exploratory drilling. A mine and a nickel concentrating plant were commissioned and a new town was built on the old site.

KAMPUNG is the Indonesian word for a village. The village is run by the *kepala kampung* (headman). He is usually elected by the members of the village. On Java, the headman is called the *lurah.* He usually has a staff which sometimes numbers as many as 20 people. These people include his *wakil lurah* (deputy), a *carik* (secretary), a representative from each *dukuh* (hamlet) of the village, and a *modin* who looks after such religious affairs as weddings, deaths, and the *selamatan* (village feasts). In many Javanese villages, the village headman and his staff may be paid by the villagers with the produce from the lands they hold communally. On Java the land has been divided and sub-divided until the majority of private village holdings are in small plots of land. Most of the land is in the form of *sawah* (wet rice fields) which rely on complex irrigation systems. These irrigation systems are usually co-ordinated at the village level by the *ulu-ulu* (member of the headman's staff).

See also JAVA in this volume.

KANAKAS were people from the Solomon Islands, New Hebrides, and parts of New Guinea who worked on sugar and cotton plantations in Australia and Fiji in the late 1800s. *Kanaka* is a Polynesian word for *man.* Between 1867 and 1904, more than 50,000 kanakas landed in Australia. In theory, they were voluntary immigrants employed on three-year contracts. In practice, *blackbirders* (men who supplied kanakas to plantation owners) kidnapped and transported them to Queensland and New South Wales. Many kanakas lived and worked under extremely harsh conditions.

Robert Towns introduced the first kanakas into Queensland in 1867 (see TOWNS, ROBERT, in the other Australasian volume). The sugar farmers wanted more of them to use as cheap labour, and the blackbirders soon developed a flourishing trade. Humanitarians demanded an end to this trade. In 1885, the Queensland government passed an act banning the use of kanaka labour. But, during the 1890s, a depression almost ruined the sugar industry. As a result, the Queensland government restricted the scope of its act to simply improving working conditions for the kanakas. In 1904, the federal and Queensland governments prohibited the entry of kanakas to Australia. They also set aside money to send kanakas back home, and offered subsidies for sugar cut by European labourers.

See also BLACKBIRDERS in this volume.

KANGAROO ISLAND is the largest island off the coast of South Australia. It is nearly 44,000 square kilometres (16,988 square miles) in area. It is about 145 kilometres (90 miles) long by 55 kilometres (34 miles) wide at its widest part. It is the third largest island in Australian waters. The island is separated from the mainland by Investigator Strait. It is about 145 kilometres (90 miles) south of Adelaide.

Most of the people on the island work as farmers growing wheat, barley, and oats, and raising sheep and cattle. Other industries include fishing and the production of honey, yacca gum, eucalyptus oil, salt, and gypsum. Tourism is one of the main sources of income on the island. There are 549 square kilometres (212 square miles) of national reserve known as Flinders Chase. Tourists can see fairy penguins and enjoy the rugged natural coastline. The main towns are Kingscote and Penneshaw. The island has a population of 3,152.

Matthew Flinders discovered the island in 1802 and named it in gratitude for the large number of kangaroos his men killed for food. The French explorer Nicolas Baudin sailed around the island in 1803. Before 1836, there was no official settlement in the area. It was inhabited mainly by escaped convicts and sailors. Away from restraints of civilization, these men led lawless lives. They lived by whaling, sealing, and cultivating small plots of land. After 1827, many inhabitants became more settled under the self-appointed government of a private individual, Robert Wallen.

The first colonists from South Australia arrived on the *Duke of York,* in July, 1836. They landed at Nepean Bay on Kangaroo Island. They established a temporary depot and whaling station under the supervision of Samuel Stephens, first manager of the South Australian Company. The settlers made use of items brought with them, such as agricultural implements, tents, and weapons. They also brought such animals as sheep, poultry, cattle, and goats. The settlement was named Kingscote after Henry Kingscote, then director of the South Australian Company. Among the pioneers was Captain Bromley. He was deeply interested in education and he established the first school for children in South Australia, under the shade of a tree. Lack of funds prevented him from building a school room for some time.

Colonel William Light, the surveyor general, and his surveying team called at Nepean Bay in August, 1836, in their search for a suitable site for a capital. There was good anchorage, which enabled ships to land safely, but Light rejected the area because of the poor soil, the scrub which grew everywhere, and the lack of a stream or river needed to provide fresh water supplies. In 1838, the South Australian Company transferred its headquarters to the new site at Holdfast Bay on the mainland. By 1840, most inhabitants had left the island. Further major development did not take place until deficiencies of copper and cobalt in the soil were overcome.

See also SOUTH AUSTRALIA in the other Australasian volume.

KANGAROO PAW is a flowering plant which grows only in Western Australia. There are about 10 kinds. The plants have narrow leaves coming straight from the ground and tall, slender stalks bearing heads of flowers covered with dense wool of various colours which look like kangaroos' paws. The *red kangaroo paw* has bright red wool on the lower part of the flower and brilliant green wool on the upper part. The *black kangaroo paw* is startling, with black wool on the base of the flower and green on the upper part. Other kinds have yellow, fawn, or brown wool.

Scientific Classification. Kangaroo paw belongs to the bloodwort family, *Haemodoraceae.* Red kangaroo paws are species *Anigosanthos manglesii.* Black kangaroo paws are species *Macropidia fuliginosa.*

KANGAROOS. See KANGAROO in the main volumes; MARSUPIALS in the other Australasian volume.

KAPITI ISLAND lies near the south-western coast of the North Island of New Zealand. It is 9·6 kilometres (six miles) long, and is 3·2 kilometres (two miles) wide at its widest point. Some of Kapiti's hills are nearly 550 metres (1,800 feet) above sea level. The southern half of the island is one of New Zealand's chief bird sanctuaries. Farmers graze sheep on the northern half. Te Rauparaha, a Maori chief, is buried on Kapiti.

KAPUAS is the longest river in Indonesia. It rises in the Kapuas Hulu mountains in Kalimantan, near the border with Sarawak. It is more than 1,125 kilometres (700 miles) long, and flows into the Karimata Strait at Pontianak. It is navigable by steamship for about 644 kilometres (400 miles).

KAPUNI is in the centre of a large field of natural gas in New Zealand. It lies in Taranaki province on the west coast of the North Island (see NEW ZEALAND [colour maps] in the other Australasian volume). Prospectors made strikes of natural gas in the area in 1959 and 1962. Experts estimate that Kapuni could produce 60 million cubic feet of gas each day for about 20 years. Liquid crude oil can be extracted from the gas by condensation. See also PETROLEUM INDUSTRY in the other Australasian volume.

KARITANE SYSTEM, also called *Plunket System,* is a medical welfare system concerned with the care and training of mothers and the care of babies. The basic teaching of the system is the importance of breast feeding and the necessity of proper preparation of cow's milk.

Six Karitane hospitals and more than 630 local clinics provide child-care facilities in New Zealand. In Australia, independent Karitane organizations, such as the Australian Mothercraft Society, operate throughout the country. Most Karitane organizations are voluntary. But the state governments provide them with some financial assistance.

Nurses require special training under the Karitane system. In New Zealand, sisters become *Plunket nurses* after completing a four-month postgraduate course. In Australia, sisters become *Truby King nurses* after completing a similar course. In both countries, girls with no previous nursing experience can become *Karitane nurses* after a training course

of about 18 months. After qualifying, they can either work with a mother at home, or care for a family when the mother is away.

In 1907, Sir Truby King founded the Royal New Zealand Society for the Health of Women and Children, commonly called the *Plunket Society* after its patron, Lady Plunket, wife of the governor-general. King felt that the chief cause of infant mortality was maternal ignorance about correct child feeding. He argued that the only way to overcome this ignorance was to organize a system of education for mothers on the proper care of their babies. The Karitane system spread throughout New Zealand, expanding to include hospitals for sick babies, and to Australia by the 1920s. It later spread to Britain.

See also HEALTH SERVICES and KING, SIR TRUBY, in this volume.

KARRIS are the tallest trees in Western Australia and among the tallest in the world, growing to a height of 76 metres (250 feet). They have smooth, greyish-blue bark, often mottled with yellow and orange, and a straight stem branching some distance from the ground. They grow on deep, loamy soils of the south west in the 1,150 to 1,525 millimetre (45 to 60 inches) rainfall belt. The leaves are small, light green, and pointed. The karri is an important timber tree. Its wood is hard, tough, fairly durable, and fairly resistant to termites. It is used for ship building, flooring, and telegraph poles.

Scientific Classification. Karri belongs to the myrtle family, *Myrtaceae*, and is species *Eucalyptus diversicolor*.

KARTINI, RADEN AJENG (1879-1904), a Javanese princess, fought for a better social position for Indonesian women. On April 21 each year, Indonesian women celebrate *Kartini Day*. Many girls' schools throughout Indonesia are called *Kartini schools*. Raden Kartini had only an elementary education. But she became a writer of great sensitivity. Her works include *Through Darkness to Light*, a volume of letters expressing her hopes for the progress of Indonesian women.

KATOOMBA. See BLUE MOUNTAINS (city) in this volume.

KAURIS are magnificent pine trees 24 to 30 metres (80 to 100 feet) high, sometimes growing 21 metres (70 feet) without branching. They have ashy-coloured bark that peels off in heavy flakes. Their rather broad leaves grow without stalks. The leaves are reddish brown when young, but turn a soft green. The kauri is a spreading tree with leafy branches. The timber is used for cabinet work. Kauri gum (resin) is used for ornaments. Sometimes insects or leaves become embedded in it before it hardens. Kauris were once common in New Zealand, but many have been felled or destroyed in bush fires.

Scientific Classification. Kauri is a member of the family *Pinaceae*, and is species *Agathis australis*.

KAWAU ISLAND lies about seven kilometres off the eastern coast of the North Auckland Peninsula, about 48 kilometres (30 miles) to the north-east of Auckland. It has an area of more than 2,000 hectares (5,000 acres). Visitors can travel to Kawau by launch from Auckland or from Sandspit, on the mainland opposite the island. Kawau has many attractive walks and excellent facilities for sports.

KEDAH is one of the main rice-producing states in Malaysia. It extends over an area of about 9,480 square kilometres (3,660 square miles) in north-western Malaya, and includes the Langkawi Islands, a small island group lying about 32 kilometres (20 miles) off the coast. For location, see MALAYSIA (colour maps) in the other Australasian volume. The capital and largest town of Kedah is Alor Star.

The Land. The fertile plain that stretches along the western coast of the Malay Peninsula extends for more than 80 kilometres (50 miles) through Kedah. In the centre of the plain, Jerai, which is also called Kedah Peak, rises to a height of 1,216 metres (3,992 feet) above sea level. It has been a landmark for sailors for hundreds of years. From the coastal plain, the land rises inland to the low mountains of the Singgora Range, which forms the international frontier between Malaysia and Thailand. The highest mountain in the state is Bintang (1,862 metres or 6,110 feet). It is in the Bintang Range, which marks the boundary between Kedah and Perak. Several rivers flow through Kedah, including the Kedah, the Merbok, and the Muda.

Among the most attractive features of Kedah's landscape are the outcrops of limestone that occur in many places in the Langkawi Islands and in northern Kedah. Many underground caves lie under these rocks, where rain-water has dissolved the limestone. Some of the caves provide shelter for swarms of bats and swifts. The bats are valuable for their manure, which is an excellent fertilizer for rice fields. The swifts are valuable for the nests they build on the walls and roofs of the caves, using their saliva to cement twigs together. People collect the nests for sale to Chinese, who make bird's nest soup (see BIRD'S-NEST SOUP in the main volumes).

In many places, rain-water has dissolved so much of the limestone that the roofs of the caves have collapsed, leaving deep, open valleys surrounded on all sides by steep cliffs. Farmers have settled in some of these valleys and planted rice fields in them.

The People and Their Work. More than 700,000 people live in Kedah. Of every 100 people, 65 are Malays, 20 are Chinese, and 9 are Indians. Most of the people in the state live in country districts and earn a living by farming. Kedah has only three towns with more than 10,000 inhabitants—Alor Star, Sungei Patani, and Kulim.

In the north of the state, most farmers grow rice. Kedah has about 45,000 rice farms—more than twice as many as any other Malaysian state. They vary in size from less than 0·4 hectares (1 acre) to more than 4 hectares (10 acres), and occupy a total area of nearly 117,000 hectares (290,000 acres) in a belt of fertile ground along the coast. Farmers in Kedah have good irrigation facilities and are able to obtain high yields of rice.

Rubber is also an important crop in Kedah. It grows mainly in the hilly central and southern regions of the state. Farmers in the state also grow coconuts, maize, peanuts, and large quantities of tapioca.

KEDAH

Many people in Kedah earn a living by fishing. They set out from small coastal ports, such as Kuala Kedah, and travel to fishing grounds as far south as the Dindings in Perak and as far north as the Kra Isthmus in Thailand.

Most of Kedah's industries are connected with its agriculture. Two-thirds of the factories in the state are rice mills. Others process rubber.

Things to See and Do. Alor Star has an outstanding group of royal buildings, including the sultan's palace, a royal mosque, and a tower for the court musicians. In the north of the town, there is a royal boat shed with the best-preserved and most famous of all the royal barges in Malaya.

History. In the A.D. 400s, Indian traders from Malabar and Bengal began building towns along the coast of Kedah. Most of the towns were located near estuaries that provided shelter for the traders' ships. In the 1000s, the region was the most prosperous part of the Hindu empire of Srivijaya, and second in importance only to Palembang in south-eastern Sumatra, the empire's capital. When the empire collapsed, in the 1200s, Kedah rapidly declined. It remained in a weak condition for hundreds of years, and was raided over and over again by Acehnese, Bugis, and Portuguese. In 1821, the Thais invaded the region, killed nearly half the people, and, for a time, ruled Kedah directly. In 1909, Thailand transferred control of Kedah, Kelantan, Perlis, and Trengganu to British authorities in Malaya. For a brief period during World War II, the Japanese placed the states under the control of Thailand once again. But, at the end of the war, Thailand returned them to Malaya. Kedah became independent as part of the Federation of Malaya in 1957.

M. Wong

Some Rice Farms in Kedah are irrigated by canal. Farmers in the state obtain yields of rice that are twice as high as those obtained by farmers in other parts of Malaysia.

Related Articles in the Australasian volumes include:

Bintang Range	Malays
History of Indonesia	Perlis
History of Malaysia	Rice Growing

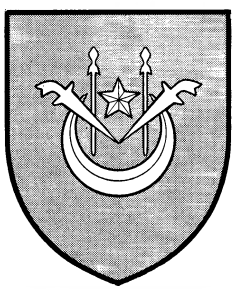
KEDIRI (pop. 158,918) is a city in the fertile valley of the Brantas river in East Java. It is about 60 miles to the south-west of Surabaya. For location, see INDONESIA (colour maps) in this volume. Kediri stands between two volcanoes, Wilis and Kelud. The Brantas river divides the city into two parts.

From the 1000s to the 1200s, the city was the capital of the east Javanese kingdom of Kediri. Temples that date from this period still stand near the city. In the 1000s, King Airlangga divided his Javanese kingdom into two parts (see AIRLANGGA in this volume). Kediri was the smaller of the two, but soon became the more powerful. Many stories in classical Javanese literature tell of Kediri's power. It ruled Bali in the 1000s and early 1100s.

KEEPIT DAM blocks the Namoi River west of the Dividing Range, 24 miles north-west of Gunnedah, in northern New South Wales. The concrete dam is 139 feet high. It stores 345,000 acre-feet of water. A hydro-electric power station at the dam supplies local electricity to a capacity of 6,000 kilowatts. The catchment area covers 2,250 square miles. Keepit Dam controls the Namoi Valley's domestic, stock, and town water supply, as well as the irrigation for the Wee Waa cotton plantations.

David Gott

Kelantan's Coast has beaches of white sand. Fishermen live near their boats in villages sheltered by palm trees.



KELANTAN is a large state in the north of Malaya, surrounded by high mountain ranges that isolate it from neighbouring states. Passenger trains visit the state only three times a week, and the journey by road from Kuala Lumpur to Kota Baharu, the capital of Kelantan, takes a whole day.

The Land. Kelantan extends over an area of 14,882 square kilometres (5,746 square miles). For location, see MALAYSIA (colour maps) in the other Australasian volume. Mountain ranges mark the eastern, southern, and western borders of the state. The mountains to the east include several peaks, such as Chintawasa, Gagau, Kabing, and Temiang, that rise to more than 1,200 metres (4,000 feet) above sea level. Mt. Tahan (2,190 metres or 7,186 feet), the highest mountain in Malaya, is on the southern border. The Main Range extends along the state's western border. The Kelantan River rises in several branches in these mountainous regions.

The People and Their Work. Most of the 605,000 people in Kelantan live in the delta of the Kelantan River and earn a living by farming. Nine-tenths of the state is uninhabited except for wandering tribes of Malayan aborigines. Of every 100 people who live in Kelantan, about 90 are Malays, and only 7 are Chinese.

Kelantan's main crops are rice, which occupies 55,442 hectares (137,000 acres) of land, and rubber, which occupies 59,893 hectares (148,000 acres).

In the coastal region of the state, many people earn a living by fishing. Kelantan has few manufacturing industries and only a few mines, which produce small quantities of iron ore. Only 10 out of every 100 people live in towns—a lower proportion than in any other state in Malaya.

Things to See and Do. Kota Baharu still retains the atmosphere of a Malayan city of hundreds of years ago. It has a colourful market and an attractive royal palace and mosque. Many silversmiths work in Kota Baharu. Their elegant engraved and filigree handiwork is sold throughout Malaya.

History. Kelantan is more accessible from Thailand than from the rest of Malaya, and, for much of its history, the state was under Thai domination. The sultans of Kelantan had to pay tribute to the kings of Thailand. In 1909, Thailand transferred control of the state to the British authorities in Malaya. Kelantan attained independence at the same time as the other states of Malaya, in 1957.

Related Articles in the Australasian volumes include:

History of Malaysia	Rice Growing
Main Range	Rubber Production
Malayan Aborigines	Tahan
Malays	

KELLY, JAMES (1791-1859), founded the whaling industry in Van Diemen's Land (now Tasmania). He was born at Parramatta, in New South Wales. During his apprenticeship at sea, he took part in sealing in Bass Strait and New Zealand and in the sandalwood trade with Fiji. In 1815, with four other men, he sailed right round Van Diemen's Land in a whaleboat. In 1819, he was appointed harbourmaster and pilot of the port of Hobart. He fitted out several boats as whalers and set up bay whaling stations. He reaped rich rewards from whaling at the start. Later, however, the number of whales declined, and so did Kelly's fortunes.

KELLY, NED (1854-1880), was the most famous of all Australian bushrangers (see BUSHRANGERS in this volume). During his lifetime, many people regarded him as a cruel and vicious criminal. But many others, especially the poor and underprivileged people in Australia, thought of him as a hero. They believed that many of the laws of the time were unjust, and they supported Ned Kelly because he represented a revolt against the forces of law and order.

Early Life. Ned Kelly was born on a small dairy farm at Beveridge in Victoria. His father died in 1866, and Ned moved with his mother and six younger brothers and sisters to a 20-acre farm at Eleven Mile Creek, near Benalla in northern Victoria. At the age of 15, he was imprisoned for three months for assault. Three weeks after his release, he was sentenced to three years' imprisonment for receiving a stolen horse. After serving this sentence, Ned spent some time working as a timber cutter and station hand, but he decided that it was more profitable to steal horses and cattle.

Kelly's Grievance. In 1877, while Ned was in New South Wales, the Victorian police issued warrants for his arrest and the arrest of his younger brother Dan on charges of stealing horses. Dan Kelly disarmed and wounded a policeman who called at the Kelly farm. Then he escaped to the bush. Soon afterwards, his mother and two neighbours were sentenced to several years' imprisonment for helping Dan to evade arrest.

Ned Kelly quickly returned from New South Wales and joined his brother in hiding in the Wombat Ranges. He claimed that his mother had been unjustly accused, urged the government to release her, and threatened revenge if his request was refused. The government replied by offering rewards of £100 for the capture of either Ned or Dan. But friends and relatives supplied the Kellys with food and warned them of police searches. Eventually, two local young men, Steve Hart and Joe Byrne, joined them.

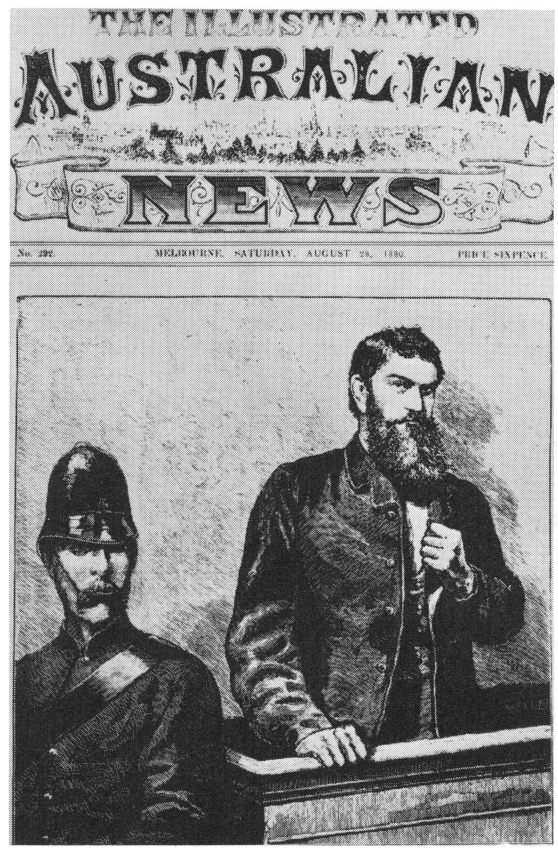
Stringybark Creek. In October, 1878, a police patrol, consisting of a sergeant and three constables, started a hunt for the Kelly gang in the Wombat Ranges. The Kellys attacked their camp at Stringybark Creek. In the gun battle that followed, they shot and killed the sergeant and two of the constables. After this incident, there could be no turning back for the gang. The government declared them outlaws and offered a reward of £500 for the capture of each of them, dead or alive.

Raids of the Kelly Gang. In December, 1878, the gang rode into the town of Euroa, in Victoria, and held up and robbed the local bank. In February, 1879, they crossed the border into New South Wales and raided the town of Jerilderie. They robbed another bank of more than £2,000, and remained in the town for several days. Ned tried unsuccessfully to find a publisher for an 8,000-word manifesto, now known as the "Jerilderie Letter", in which he aired his grievances.

Kelly's Last Stand. After the raid on Jerilderie, the government put a price of £2,000 on the head of each member of the gang, and, for more than a year, the Kellys remained quietly in hiding. Early in 1880, they stole the mouldboards of ploughs from several farms in the area, and shaped them into helmets and suits of armour. The armour covered their bodies, but left their arms and legs exposed to gunfire.

In June, 1880, two members of the gang rode to Beechworth, in Victoria, and murdered Aaron Sheritt, a former friend who had become a police informer. Later, they joined the rest of the gang at Glenrowan, where Kelly forced a group of men to tear up the railway track leading into the town. The gang herded the rest of the townspeople into a local hotel. Kelly was sure that police reinforcements would be sent from Benalla as soon as news of Sheritt's murder reached there. He planned to derail the train on which the police would travel. But a local schoolteacher slipped out of the hotel and stopped the train in time. The police arrived safely in Glenrowan and surrounded the hotel. Kelly decided to let the townspeople go free, but a constant hail of police bullets forced them to remain inside the hotel.

In a siege that lasted for more than 10 hours, Joe Byrne, Steve Hart, and Dan Kelly were all killed. Late in the afternoon, Ned Kelly emerged from the



Australian News and Information Bureau

At Ned Kelly's Trial, no witnesses were called in his defence. This illustration appeared in a Melbourne magazine on Aug. 28, 1880, three months before he was hanged.

rear of the hotel wearing his armour under a long white mackintosh. He walked slowly towards the police, firing as he moved. A police bullet wounded him below his armour, and he fell to the ground and was captured.

At his trial, no witnesses were called for the defence. Ned Kelly was sentenced to death. "Such is life" was his last comment before he was hanged at Melbourne Gaol in November, 1880.

Ned Kelly in Literature and Painting. Even during Ned Kelly's life, many popular ballads described him as a kind of folk hero. In 1942, the poet Douglas Stewart wrote a verse play about Ned Kelly, and, in 1947, the painter Sidney Nolan completed a series of pictures on the subject of Ned Kelly's exploits (see NOLAN, SIDNEY, and STEWART, DOUGLAS, in the other Australasian volume). Nolan depicted him as an almost supernatural figure, sometimes brave and gaily defiant, but always lost and lonely, in a dream-like landscape.

KELPIES are Australian sheepdogs. They are extremely active, highly intelligent dogs with a natural instinct for controlling sheep, and a tireless enthusiasm for work in the Australian outback or city saleyards. They are lithe, muscular dogs, and have a tremendous turn of speed. The kelpie is descended from the Scottish short haired collie. It has short hair and pricked ears, and its coat colours are black, tan, red, fawn, chocolate, or smoke blue. The winner of Australia's first sheepdog trial in 1872 was called *Kelpie* (Gaelic for water sprite), and the sale of Kelpie's pups gave the breed its name.

KENDALL, HENRY (1839-1882), was one of the first poets to capture successfully the Australian scene in verse. He succeeded in portraying the unique qualities of the Australian landscape at a time when English poets still strongly influenced Australian writers. His lyric verse is fluent, musical, and intense in its feeling for the New South Wales bush country it describes.

Reflections of his unhappy personal life, dogged by poverty, ill health, and intemperance, can be seen in his frequent lapses into sentimentality. "Bell Birds" is considered one of his finest lyrics. His bush ballads, of which "The Song of the Cattle Hunters" is best known, are vigorous and full of action in spite of his sometimes inaccurate descriptions. His work imitates the English Victorian poets to the extent that it hinders his descriptions of a truly Australian landscape. His works include *Poems and Songs* (1862), *Leaves from Australian Forests* (1869), and *Songs from the Mountains* (1880).

Kendall was born near Milton, on the south coast of New South Wales. He was the grandson of the missionary Thomas Kendall.

KENDALL, THOMAS (1778-1832), a British schoolteacher and missionary, helped to compile the first dictionary of the Maori language. He was also the first person to become a resident missionary in New Zealand. Early in 1814, Kendall and another missionary visited New Zealand at the request of Samuel Marsden to investigate the possibility of establishing a mission. They set up a mission near the Bay of Islands. Kendall was the grandfather of the poet Henry Kendall.

KENEALLY, THOMAS MICHAEL (1935-), an Australian novelist and playwright, won the Miles Franklin Award for the best novel of 1967 with his book *Bring Larks and Heroes*. Keneally was a schoolteacher when he wrote his first novel, *The Place at Whitton* (1964). Both *Bring Larks and Heroes* and *Halloran's Little Boat,* his first play, are based on the same story of colonial times. Another play, *Childermass,* was first produced in 1968. His other novels are *The Fear* (1965); *Three Cheers for the Paraclete* (1968), dealing with conflict within the Roman Catholic Church; *The Survivor* (1969); and *The Chant of Jimmy Blacksmith* (1972), about an Aborigine caught between two worlds.

Keneally was born and educated in Sydney. He trained for the Roman Catholic priesthood, but was not ordained. In 1968 he became a lecturer at the University of New England.

KENNEDY, EDMUND (1818-1848), an Australian explorer, became famous for his expeditions into many unexplored areas of Queensland during the mid-1800s. In 1845, he was second-in-command of an expedition led by Sir Thomas Mitchell (see MITCHELL, SIR THOMAS LIVINGSTONE, in the other Australasian volume). They discovered rich grasslands in central Queensland, and a river that Mitchell named the Victoria. In 1847, Kennedy led an expedition to follow the course of the river, discovering that it ended in water-holes in South Australia. Later, he learnt that it was, in fact, Cooper's Creek, discovered by Charles Sturt in 1845 (see STURT, CHARLES, in the other Australasian volume).

In 1848, Kennedy led a party of 12 men on an expedition to survey the eastern coast of northern Queensland. They sailed in the *Rattlesnake* to Rockingham Bay, near Tully, where they disembarked and began their overland journey with the intention of rejoining the ship at Cape York. But late tropical rain in the dense forests of the Atherton Tableland weakened the men and their animals. In addition, Aborigines harassed the party.

Six months after leaving Rockingham Bay, Kennedy set up camp at Weymouth Bay, near Cape Direction. There, he divided the party, leaving eight men at the camp while he pressed on with four others, including his Aboriginal guide, Jacky Jacky. The two white men gave up the journey at Shelburne Bay, and Kennedy travelled on with Jacky Jacky. About 20 kilometres from Cape York, Aborigines attacked Kennedy and his companion, severely wounding them. Jacky Jacky remained with his leader until he died, and then struggled on to rejoin the ship. He directed a rescue party to the camps at Shelburne and Weymouth bays where they found only two of the group still alive.

KENNY, ELIZABETH. See KENNY, ELIZABETH, in the main volumes.

KERMADEC ISLANDS are a rugged group of small islands about 600 miles north of Auckland in New Zealand. For location, see PACIFIC ISLANDS (colour map) in the main volumes. They are a New Zealand dependency. Raoul, the main island, has an active volcano and is unsuitable for settlement.

KERR'S HUNDREDWEIGHT was a gold nugget that was found at Meroo Creek, in New South Wales, in 1851. In July, an Aboriginal shepherd noticed gold and ran to the homestead of a doctor by the name of Kerr. Kerr found several lumps of gold-studded quartz, together weighing 90,700 grams (200 pounds). One lump, later named Kerr's Hundredweight, contained 36,060 grams (1,272 ounces) of gold.

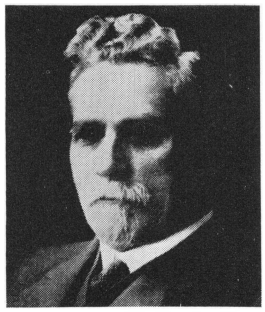
KIAMA (pop. 6,729) is a seaport town with a shallow anchorage harbour on the Illawarra coast of New South Wales. For location, see NEW SOUTH WALES (map) in the other Australasian volume. Most farmers in the area keep dairy cattle. Tourist attractions include the *blowhole,* a basalt rock formation resembling a high arched cavern through which, in times of rough seas, water is forced upwards in the form of a high spray. Saddleback Mountain Lookout provides a scenic view of the entire Illawarra coast and the Jamberoo Valley.

The blowhole and the harbour of Kiama were first observed by George Bass, when he sailed with Matthew Flinders in the *Tom Thumb* along this part of the coast in 1797.

KIANDRA is a tourist and ski resort in the Snowy Mountains of New South Wales, on the Monaro Highway between Cooma and Tumut, at an altitude of 1,414 metres (4,640 feet) above sea level. The town of Kiandra developed from the discovery of gold in the locality in 1859. The sport of skiing in Australia is generally considered to have originated in Kiandra, in 1861.

See also SKI-ING in the other Australasian volume.

KIDMAN, SIR SIDNEY (1857-1935), was an Australian *station* (ranch) owner. He was born in Adelaide. At the age of 13, he ran away from home to work on a station in western New South Wales. He saved his wages, bought and sold horses, and ran a bullock team. Later, he owned a butcher's shop, a mail coach, and a stock and estate agency. He also bought vast tracts of land in the centre of Australia for grazing cattle. By 1910, he owned 25 stations, as well as shares in many others. He became a millionaire.



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Sir Sidney Kidman

KIEWA HYDRO-ELECTRIC SCHEME consists of three power stations on the headwaters of Kiewa river in Victoria. The scheme was approved by the Victorian parliament in 1937 and commenced in 1944. Water collected from Bogong High Plains is held at the Rocky Valley reservoir. It is thrust by tunnel under mountains from the East Kiewa tributary to the West Kiewa. From a further power station and reservoir at Clover, built in 1955, water is released into the West Kiewa. Six turbo-generators at McKay Creek were added in 1960.

KIMBERLEYS are a group of ranges and plateaux that occupy a large area in the north-western region of Australia. The Kimberley district is bounded on the east by the Ord River and its tributaries and on the west by the Fitzroy River and its tributaries. The area is noted for the spectacular beauty of its mountains, plateaux, and gorges. Geologically, it is one of the oldest regions in the world. Most of the ranges are made up of pre-Cambrian sandstones and quartzites. Some peaks reach heights of about 914 metres (3,000 feet) above sea level.

Much of the land in the Kimberley area is unsuitable for agriculture. Farmers in the area raise beef cattle. Between December and March, heavy rains fall in the region. The Ord River and its tributaries flow across black soil plains that are suitable for cotton growing. A proposed dam on the Ord River will store water for irrigation schemes. Wyndham is the chief town of the Kimberley area.

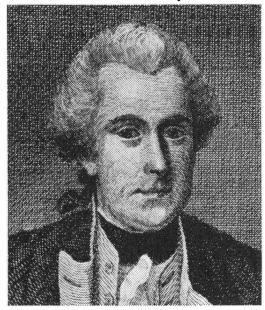
See also ORD in the other Australasian volume.

KING, PHILIP GIDLEY (1758-1808), was governor of New South Wales from 1800 to 1806. He encouraged exploration, organized the settlement of Van Diemen's Land (now Tasmania), kept food at a reasonable price, and tried to stabilize money in the colony. He also transferred the inhabitants of the Norfolk Island settlement to Van Diemen's Land. But he was unable to control the officers of the New South Wales Corps (see NEW SOUTH WALES CORPS in the other Australasian volume). King was born at Launceston, in England. In 1787, he sailed as lieutenant on H.M.S. *Sirius* in the First Fleet (see SIRIUS in the other Australasian volume). From 1788 to 1796, he commanded the Norfolk Island settlement. See also HISTORY OF AUSTRALIA (The Beginnings [1788-1821]) in this volume.

KING, SIR TRUBY (1858-1938), a doctor and welfare specialist, founded the Royal New Zealand Society for the Health of Women and Children, commonly called the *Plunket Society,* in 1907. While working as medical superintendent of the Wellington Hospital and the Dunedin Mental Hospital, he evolved a system of child welfare and training for children's nurses. The system became known as the Karitane, or Plunket, System. In 1923, he arranged for the first matron to go from New Zealand to start the system in Australia. His full name was FREDERICK TRUBY KING. He was born at New Plymouth, in the North Island. See also KARITANE SYSTEM in this volume.

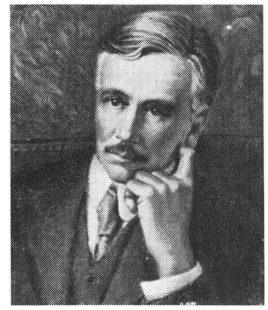
Philip Gidley King

Courtesy V. Phelan

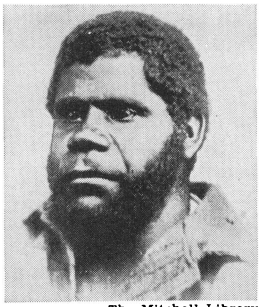


Sir Truby King

New Zealand Herald



KING BILLY (1835-1869) was the last male Tasmanian Aborigine. His name was WILLIAM LANNEY. In 1835, his family was the last Tasmanian group to be taken from the mainland to Flinders Island. He grew up at the special Aboriginal settlements at Flinders Island and Oyster Cove, near Hobart. He eventually became a sailor, and went whaling. When he was the only surviving male of his race, the colonists gave him the nickname *King Billy*.



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King Billy

Lanney died on March 6, 1869, after returning ill from a whaling trip. During that night, his skull was removed. The authorities, thinking that the thieves wanted the whole of the body as a souvenir, cut off the hands and feet in order to make it worthless. The coffin was then buried in the Hobart cemetery. But, next day, a police constable found the coffin unearthed, and the body removed. King Billy's skeleton has never been recovered. Truganini, the last Tasmanian Aborigine, died in 1876.

See also TASMANIAN ABORIGINES and TRUGANINI in the other Australasian volume.

KING COUNTRY is an area covering 25,900 square kilometres (10,000 square miles) in the central part of the North Island of New Zealand. Its borders are the Rangitoto Mountains, in the north; the Pirongia Ranges, in the east; the western half of Lake Taupo, in the south; and the Waipa Valley, in the west. In the south, mountain ranges rise to 2,797 metres (9,175 feet) above sea level at Mt. Ruapehu and to 1,996 metres (6,548 feet) at Mt. Tongariro. The name *King Country* originated in 1857, when followers of the Maori King movement declared that Europeans were forbidden to settle in the region.

KING GEORGE SOUND is one of the finest harbours on the Australian coast. It lies on the southern coast of Western Australia. The port of Albany stands on Princess Royal Harbour, the western part of the sound. The sound is sheltered by an isthmus and has two inner harbours that can be reached through narrow straits. Within the sound are a number of islands. George Vancouver, the British explorer, discovered the sound in 1791. He originally named it *King George III's Sound*. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume.

KING ISLAND lies at the western approach to Bass Strait, between Tasmania and the mainland of Australia. The island has an area of 110,000 hectares (272,000 acres). The land is mostly flat and supports beef and dairy cattle, sheep, and pigs. Currie, with a population of 700, is the island's chief town. Grassy is a mining centre. Near the town are the world's largest deposits of scheelite, a tungsten ore. The island was discovered in 1798, and named after Philip Gidley King, the governor of New South Wales, in 1801.

KING LEOPOLD RANGE, in Western Australia, flanks the Kimberley area and extends almost to Collier Bay in the northern part of the state. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume. The highest peaks in the range include Mt. Ord (936 metres or 3,070 feet above sea level) and Mt. Broome (927 metres or 3,040 feet). The Fitzroy River cuts through the range below Fitzroy Bluff. In 1879, Alexander Forrest explored the range, naming it after King Leopold II of Belgium (see FORREST in this volume).

KING MOVEMENT was an attempt by the Maoris to govern themselves. For many years, the Maoris had engaged in fierce tribal warfare. When Europeans began settling in New Zealand, the chiefs of many Maori tribes sold land or grain to them.

The King movement began in the 1850s. Many Maoris became discontented with selling their land. Others resented the high taxes and the falling price of wheat. Maori leaders met at Ngaruawahia in 1858 and elected the old Waikato chief Potatau Te Wherowhero as King Potatau I. They hoped to unite all Maoris under his rule. When he died, in 1860, his son became King Tawhiao.

Governor Thomas Gore-Browne refused to recognize the Maori kingdom when a deputation of chiefs visited him. Tawhiao later withdrew across the Puniu River, in an area of the Waikato that became known as the *King Country*. War broke out between the government and the Maoris (see MAORI WARS in the other Australasian volume). During these wars, the King movement gained strength. In 1881, the Maori wars ended, and the Maoris allowed government officials to enter the King Country.

Later, leaders of the movement encouraged their supporters, called the *Kingite tribes,* to co-operate on land development plans. Two Maori leaders, Sir Apirana Ngata and Princess Te Puea, both worked for this aim. King Koroki took the throne in 1933. The king's residence at Ngaruawahia is a cultural focus for many Maoris.

See also MAORIS and TE WHEROWHERO in the other Australasian volume.

KINGAROY (pop. 4,931) is a town in southeastern Queensland near the headwaters of the Burnett river. It is situated on the plateau adjoining the coastal range. For location, see QUEENSLAND (map) in the other Australasian volume. More than 60 per cent of all peanuts grown in Australia come from the two shires of Kingaroy and Nanango. Primary industries in the district also produce timber, dairy products, and navy beans.

KINGSBURY, BRUCE STEEL (1918-1942), an Australian soldier, was awarded the Victoria Cross after his death in New Guinea. His battalion came under sustained enemy attack at Isurava on Aug. 29, 1942. Kingsbury, firing his Bren gun from his hip and under heavy fire, cleared a path through the enemy. He was killed by a sniper, but his courage and initiative had restored the situation and saved battalion headquarters. He was born at Armadale, in Victoria. He joined the army in 1940 and served in Syria before going to New Guinea.

Australian News and Information Bureau

Sir Charles Kingsford Smith, *above,* was Australia's greatest pioneer aviator. At the end of some of his most famous flights, his parents greeted him, *below.*

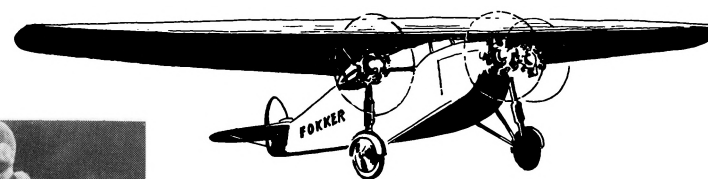
The Mitchell Library

KINGSFORD SMITH, SIR CHARLES (1897-1935), Australia's greatest aviation pioneer, made the first flight across the Pacific Ocean from the United States to Australia. He and a crew of three made the flight in 1928 in a three-engined Fokker aircraft called the *Southern Cross.* They travelled more than 12,210 kilometres in a flying time of 83 hours 11 minutes. After his transpacific flight, Australians acclaimed him as a national hero.

Experts now regard him as one of the greatest pioneers of Pacific air routes. He made the first non-stop flight across Australia and the first flights across the Tasman Sea between Australia and New Zealand. He also set up several records for air routes between Britain and Australia.

Early Life. Charles Edward Kingsford Smith was born in Brisbane. His family took him to Canada in 1903, when he was six, but went back to Australia and settled in Sydney in 1909. He studied electrical engineering at Sydney Technical College. Then, on his 18th birthday, he joined the Australian Imperial Force. He served with the AIF as a motor-cyclist, carrying dispatches both in Gallipoli and in France during World War I. He was later selected for training as a pilot with the Royal Flying Corps. He was such an apt pupil that he flew solo after 2½ hours of instruction. But he crashed the aircraft when landing it. In France, he became a fighter pilot, shooting down two German aircraft, and possibly five, before he was himself shot down in an encounter with three German fighters. He was wounded in this incident, losing two toes and a piece of his foot. He was sent to Britain as an invalid and received the Military Cross for bravery.

In Britain after the war, Kingsford Smith and another Australian acquired an aircraft and earned a precarious living flying people on short "joy rides". Kingsford Smith attempted to enter the £10,000 Britain-Australia air race in 1919. But he



was rejected because he could not navigate. In 1920, after travelling to the United States, he engaged in stunt flying.

Flying in Australia. Kingsford Smith returned to Australia in 1921 and became one of the original pilots of West Australian Airways, an airline that started the first regular air-mail service in Australia. At about this time, he decided that he wanted to be the first man to fly across the Pacific. Later, in Sydney, he met Charles Ulm. He decided that Ulm, though not then a pilot, would be his co-pilot and organizer for the flight. In 1927, these men completed a flight round Australia in the record time of 10 days 5 hours 15 minutes. The government of New South Wales granted them £3,500 after the flight. With this money and other funds, donated by the Returned Services' League and a Melbourne businessman, Sidney Myer, they left by ship for the United States to prepare for the transpacific flight. During the voyage, the ship's officers taught them navigation.

Flying the Pacific. Kingsford Smith and Ulm arrived in the United States just after an American crew had made the first major Pacific flight, from California to Hawaii. In the months before their Pacific flight, Kingsford Smith and Ulm were beset by financial difficulties. But Alan Hancock, a millionaire aviation enthusiast, bought the *Southern*

Cross from them, enabling them to settle their debts. Shortly after buying the aircraft, Hancock gave it back to the two men. They later engaged two Americans—Harold Lyons, a navigator, and James Warner, a radio operator—for the Pacific flight.

The *Southern Cross* took off from Oakland, on San Francisco Bay, on May 31, 1928, and flew to Honolulu. From there, Kingsford Smith and his crew headed into unknown conditions. No aircraft had flown across the ocean to Fiji or Australia before. There were no radio beacons for navigation and no reports on the speed or direction of the upper winds. After surviving severe storms, the aeroplane landed on a sports ground at Suva, in Fiji. Kingsford Smith had the aeroplane towed to a nearby beach and took off on the last leg of the flight. Thousands of people gathered at the airfield in Brisbane on June 9 to see the *Old Bus* (as they called the plane) land. They greeted Kingsford Smith, Ulm, and the crew with great enthusiasm. Both Kingsford Smith and Ulm were awarded the Air Force Cross and made honorary officers of the Royal Australian Air Force. Their flight earned them a total of about £20,000 in awards and grants of money. In the months that followed, they flew the *Southern Cross* non-stop across Australia, and later to New Zealand.

The Coffee Royal Affair. In 1929, Kingsford Smith and Ulm, accompanied by two other men, set out from Sydney for London in the *Southern Cross.* The aircraft struck severe storms that forced Kingsford Smith to land at Coffee Royal, a mud flat in the north-western part of Western Australia. The aircraft's radio had failed, and searchers took 12 days to find the *Southern Cross.* Keith Anderson, one of Kingsford Smith's pilot friends, and H. S. Hitchcock, Anderson's mechanic, crashed in the Northern Territory while searching for the *Southern Cross.* After their aircraft crashed, Anderson and Hitchcock died of thirst. Angered by this loss of life, people made many accusations against Kingsford Smith and Ulm. A public inquiry examined the circumstances of the forced landing, later called the *Coffee Royal Affair.* After studying the report of the inquiry, the authorities cleared Kingsford Smith and Ulm. In the meantime, Kingsford Smith and his crew had returned to Sydney with the *Southern Cross.* The day after being cleared of blame, they made a fresh start for Britain, setting a new record of 12 days 18 hours for the Sydney-London trip.

Other Great Flights. In June, 1930, Kingsford Smith completed the first east-west flight across the Atlantic Ocean. In October, 1930, he flew solo from Britain to Darwin in 9 days 22 hours 15 minutes. Earlier that year, he and Ulm established Australian National Airways (ANA), an airline that operated between Brisbane, Sydney, and Melbourne. ANA failed in the economic depression of the early 1930s, with the crash of the *Southern Cloud* as the final blow (see SOUTHERN CLOUD in the other Australasian volume).

In 1932, Kingsford Smith was knighted. In 1933, he flew solo from Darwin to Britain in the record time of 7 days 4 hours 44 minutes. In October, 1934, he made the first flight across the Pacific from Australia to the United States. It was also the first transpacific flight in a single-engined aircraft. Many people regard it as his greatest flight.

On Nov. 6, 1935, he and another pilot, J. T. Pethybridge, made an attempt on the Britain-Australia record. Their aircraft reached India safely. But on the next leg of the trip—over Burma or the Bay of Bengal to Malaya—it disappeared. Two years later, pieces of its wreckage were found near the coast of Burma.

See also AIR TRANSPORT in this volume; SOUTHERN CROSS; TAYLOR, SIR GORDON; and ULM, CHARLES, in the other Australasian volume.

KIPPENBERGER, SIR HOWARD (1897-1957), was one of the most distinguished New Zealand soldiers of World War II. He was born at Ladbrooks, near Christchurch. He served in the New Zealand Army in France in World War I. After the war, he became a lawyer. After World War II began, he took command of an infantry battalion, serving as an officer in Greece, Crete, northern Africa, and Italy. In 1941, in northern Africa, the Germans took him prisoner. But he soon escaped. For a short time, he was the general commanding the Second New Zealand Division. In 1944, he stepped on a land mine and lost both feet. This accident ended his fighting career.

KIRK, NORMAN ERIC (1923-1974), was prime minister of New Zealand from 1972 until his death. A Labour party leader, Kirk was born and educated at Christchurch. He later became an engine driver, a fitter and turner, and a ferryboat engineer. From 1953 to 1957, he was mayor of Kaiapoi, near Christchurch. When he was elected, he was New Zealand's youngest mayor. In 1957, he became a member of parliament. There, he soon gained a reputation as a skillful speaker in debates. In the 1960s, he became a leading figure in the party and, in 1965, he became leader of his party in parliament.

Norman Kirk
New Zealand Government

KIRKWOOD, JOE. See GOLF (Famous Golfers) in this volume.

KIWI. See KIWI in the main volumes.

KIWI FRUIT, also known as *Chinese gooseberries,* are an important fruit crop in New Zealand. The world's largest centre for growing this highly nutritious fruit is around the Bay of Plenty in the North Island. More than 2,000 tonnes (2,204 tons) of these fruit are produced in New Zealand each year. They are exported to many countries, including Australia. In the mid-1970s, exports amounted to $NZ 1·5 million. Some fruit were selling for more than 50 cents each in London, making kiwi fruit one of the highest-priced fruits in the world.

KIWIS. See RUGBY LEAGUE (International Competitions) in the other Australasian volume.

KLANG (pop. 75,678), the fourth largest town in Malaya, lies in the state of Selangor, about 32 kilometres (20 miles) south-west of Kuala Lumpur. For location, see MALAYSIA (colour maps) in the other Australasian volume. Klang is situated near the estuary of the Klang River and is an important port. Workers at the port handle imports and exports from Kuala Lumpur and the rich mining and agricultural area of the Klang Valley. Many industries have sprung up in the town because of its closeness to Kuala Lumpur. They include a pineapple cannery and palm oil factories.

Archaeologists believe that people first settled in the area as early as 200 B.C. During the 1300s, the area was part of the Majapahit empire. The port of Klang developed after 1850, when tin was first mined in the Main Range in Selangor.

KNOPWOOD, ROBERT (1761-1838), was the first chaplain of Van Diemen's Land (now Tasmania). He was born at Threxton, in Norfolk, in England and landed in Hobart with David Collins in 1804. His daily diary portrays life at the times. His work took him to the northern settlements, the Derwent valley, and the Sorell district.

KOALAS. See KOALA in the main volumes; MARSUPIALS in the other Australasian volume.

KOKI is an important local trading market in Port Moresby for the sale of betel nut, fish, and fresh food such as bananas, yams, taro, sweet potato, and other vegetables. It operates daily from about 4 p.m. until dark and its produce is brought by land from local areas and by sea from places along the coast as much as 200 kilometres (125 miles) away.

The market is managed by the Koki Market Trust, mainly because the trustees and the farmers feel the need to have a body to guard their interests in the city. The trust also collects revenue to be used in improving conditions for trading. It also recognizes the importance of Koki as a social centre and meeting place and of its value as a tourist centre.

KOKODA TRAIL is a mountain track across the Owen-Stanley Range in New Guinea. It runs from the highland town of Kokoda to the Sogeri Plains, north of Port Moresby. The name of the track has come to symbolize the fierce fighting during the Japanese invasion of New Guinea in World War II.

In July, 1942, Japanese troops landed at Buna and Gona, on the north-eastern coast of New Guinea. Australian troops waited just east of Kokoda. In the ensuing battle, the Japanese won, lost, then regained the village. They then pressed forward across the Owen-Stanley Range. Both sides had to contend with heat, torrential rains, strained supply lines, and the harshness of the countryside. The Japanese managed to press to within 52 kilometres (32 miles) of Port Moresby. But hunger and disease affected them and they did not attack the town. In August, Australian troops defeated a second wave of Japanese troops that had landed at Milne Bay on the southern coast. The U.S. Navy won important victories in the Coral Sea and at Midway Island, preventing the Japanese from mounting a sea attack on Port Moresby. Australian troops stopped the Japanese advance at Eoribaiwa, on the Kokoda Trail, in September.

In December, Australian and American troops attacked Buna and Gona and forced the Japanese to evacuate the mainland of New Guinea. They continued to push them back, and won major battles in such islands as New Britain and Bougainville.

See also HISTORY OF AUSTRALIA (The Kokoda Trail) in this volume.

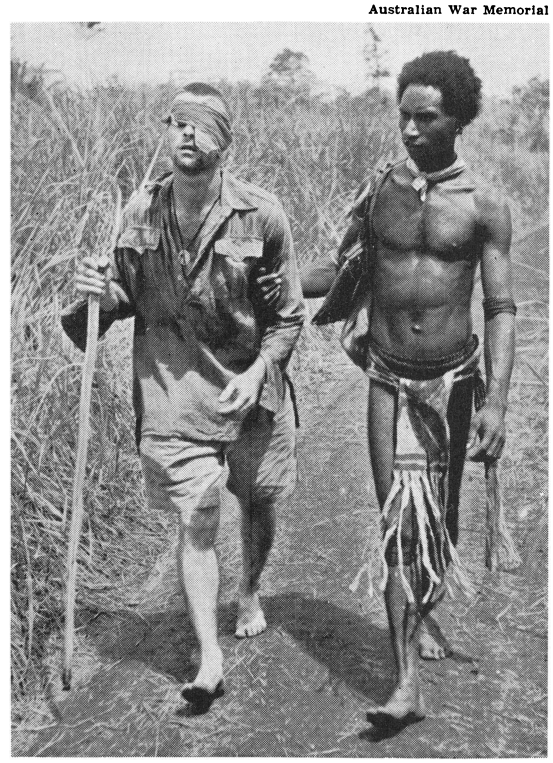
KOMODO DRAGON. See DRAGON OF KOMODO in the main volumes.

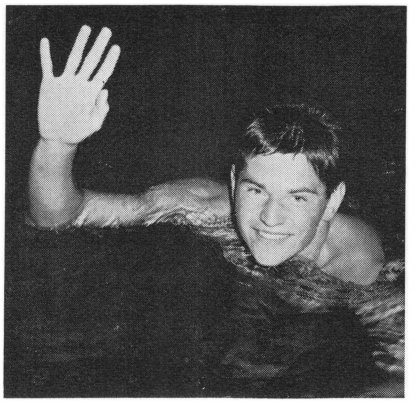
KONRADS is the family name of two Australian swimming champions, brother and sister. They were born in Latvia and migrated to Australia in 1949. They later became naturalized Australians. They came to be known as the "Konrads Kids".

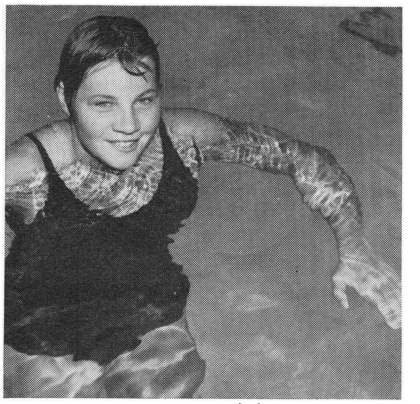
Jon Konrads (1942-) held every world free-style record from 200 metres to 1,650 yards (1,509 metres) in 1959. He began training with the swimming coach Don Talbot in 1953. At 15, he held six world records. At the Australian championships of 1959, he won all the men's free-style events. At the 1960 Olympic Games, he won the 1,500 metres free-style event. Later, he became a coach.

Ilsa Konrads (1944-) began swimming at a migrant hostel in the New South Wales town of Uranquinty. She also trained under Talbot from 1953. When she was only 13, she held two world records. She eventually broke all the world records for women's free-style between 400 metres and 1,650 yards (1,509 metres).

Bringing the Wounded Back from the Kokoda Trail, many Papuans acted as guides or as stretcher bearers.
Australian War Memorial







Sydney Morning Herald

The "Konrads Kids" were two of the finest swimmers to represent Australia. Jon, *right,* and Ilsa, *far right,* broke 14 world records between them. Jon once held every record between 200 metres and 1,650 yards (1,509 metres).

KOOKABURRA. See KOOKABURRA in the main volumes.

KOOLYANOBBING is the site of large deposits of iron hematite on the northern shore of Lake Seabrook, about 402 kilometres (250 miles) north-east of Perth, in Western Australia. Estimated reserves amount to more than 100 million tonnes (100 million tons). The quarried ores are delivered by train to the B.H.P. blast furnace at Kwinana, on Cockburn Sound. Dowd's Hill, at Koolyanobbing, produces more than a million tonnes (more than a million tons) of iron ore each year. The deposits were discovered in the early 1960s and B.H.P. built a mining town on the site. Some iron ore from Koolyanobbing is also turned into pig iron at Wundowie, a mining town 68 kilometres (42 miles) north-east of Perth.

See also WESTERN AUSTRALIA in the other Australasian volumes.

KORORAREKA. See HISTORY OF NEW ZEALAND (Early Settlement [1790-1850]) in this volume.

KOROTANGI is a Maori stone *kura* (heirloom). It is a carved stone bird. Many archaeologists believe that it came from the wreck of a Tamil ship on the Raglan Bar on the western coast of the North Island of New Zealand (see TAMIL BELL in the other Australasian volume).

KOTA BAHARU. See KELANTAN in this volume.

KOTA KINABALU (pop. 60,746) is the capital of Sabah, one of the states that make up Malaysia. It is the second largest town in Sabah, after Sandakan. It has a good harbour and serves as the port for the richest part of Sabah. Nearly half its people are Chinese. Kota Kinabalu lies on the plains west of the coast of Sabah.

The British founded a settlement in 1899 and named it Jesselton after Sir Charles Jessel, a director of a chartered company. The town was renamed Kota Kinabalu after Mount Kinabalu, which dominates the interior of Sabah.

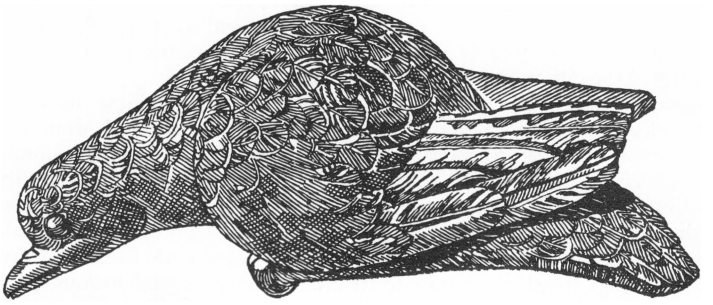
KOWHAIS are two types of flowering shrubs that are native to New Zealand. Red kowhai is rare. It is a fairly small shrub with dark green, glossy, divided leaves and large brilliant red pea flowers in pendulous heads. Yellow kowhai is a handsome tree with divided leaves, large golden pea flowers in heads, and attractive long slender pods. Yellow kowhai grows in both islands.

Scientific Classification. Both kowhais belong to the pea family, *Papilionaceae.* Red kowhai is *Clianthus puniceus.* Yellow kowhai is *Sophora tetraptera.*

KRAKATOA. See KRAKATOA in the main volumes; VOLCANOES in the other Australian volume.

KRIS. See ARTS OF INDONESIA, MALAYSIA, AND SINGAPORE (Metalwork) in this volume.

Harry Titcombe



The Korotangi is a sacred Maori heirloom. The Tainui people believed that the Korotangi came from their legendary home, Hawaiki.

Kuala Lumpur

Brian Brake, Magnum; M. Wong

Shopping in Kuala Lumpur's colourful markets is a pleasurable activity. Shoppers move freely among the stalls of enticing fruit.

Selling in the streets is common in the crowded parts of the city. Sellers display their wares to attract the attention of passers-by.

KUALA LUMPUR (pop. 451,810) is the capital of Malaysia. It is also the capital of the state of Selangor and the largest city in Malaysia. Kuala Lumpur lies in the rich tin-mining area of the Klang Valley. It is a colourful city, noted for its cosmopolitan atmosphere and the contrasting architectural styles of its Chinese and Indian temples, Malay mosques, and modern public buildings and office blocks. The Malay words *Kuala Lumpur* mean *meeting-place of muddy rivers,* referring to the city's position at the meeting-point of the Klang River and its tributary the Gombak.

Location, Size, and Description

Kuala Lumpur is situated about halfway between Singapore and Penang. It lies about 40 kilometres inland from Port Swettenham, a town on the western coast of the Malay Peninsula. The city is surrounded by low hills to the west and east, the Main Range to the north and north-east, and open land to the south and south-west.

Kuala Lumpur covers an area of 96 square kilometres, consisting of the city proper, the satellite town of Petaling Jaya, and 14 new villages built on the outskirts of the city from 1948 to 1960. The city has an equatorial climate, with an average annual temperature of about 26° C (78° F) and high humidity. Its average annual rainfall is between 230 and 250 centimetres, distributed evenly throughout the year.

The city is a mixture of the old and the new. Its imposing new buildings stand in contrast to its older government offices and railway station, built in the Moorish style, and rows of Chinese shop-houses.

The People

Out of every 100 people in Kuala Lumpur, 62 are Chinese, 17 are Indians, and 16 are Malays. The rest are mainly Eurasians and Europeans. The Chinese live mainly in the overcrowded area of Chinatown and Pudu; the Indians, in the Sentul district, north of the city, and in the Brickfields area; and the Malays, in Kampong Bharu. About 100,000 squatters, mainly Chinese and Indians, occupy the low-lying flood plains in the heart of the city. The wealthy Chinese, Indians, Malays, Eurasians, and Europeans live in the suburbs in the hilly areas to the west.

The Chinese work mainly in commerce, manufacturing, and domestic services; the Indians, in transport and communications; and the Malays, in administration, the police force, and the armed services. Many of the Chinese have lived in the city for a long time. Many Malays have moved to the city from rural areas in comparatively recent years. The chief racial groups do not form a close-knit com-

munity, mainly because of their cultural differences. Differences in religious beliefs and customs, in particular, have hindered the development of close relationships between them.

Life of the Community

Religion. Islam is the official religion, but every person is free to practise the religion of his choice. The Malays are Muslims, the Chinese are mainly Buddhists, Taoists, or Confucianists, and most of the Indians are Hindus. Most of the Eurasians and Europeans are Christians. A few Chinese and Indians are also Christians. The city has many fine mosques, the latest of which is the National Mosque. It also has about 50 Chinese temples, a number of Indian temples, and about 20 churches.

M. Wong

Mosques are a distinctive feature of Kuala Lumpur. The mosque at the University of Malaya, in Pantai Valley, is built in contemporary style.

Modern Buildings provide striking contrasts with older mosques and temples. The Main Range overlooks the city to the north and north-east.

Education. Kuala Lumpur has 45 schools that provide primary and secondary education for children of all races. In these schools, subjects are taught in English. There are also 12 Malay schools, 50 Chinese schools, and a few Tamil schools. A technical college offers three-year diploma courses in engineering, surveying, and architecture. The University of Malaya, situated near the city, offers degree courses in arts, science, agriculture, engineering, and medicine, and diploma courses in education. About 2,000 students attend the university. The city's educational facilities compare favourably with those of the other main cities of Malaysia.

Housing. Kuala Lumpur suffers from an acute housing shortage. It has a large number of temporary settlements and many of its permanent houses are overcrowded. It has about 8 people to each house. In the more crowded areas, there are about 12 people to every house. New housing estates are being built to relieve the shortage, but progress is slow because of the city's rapidly increasing population.

Health. At one time, major diseases such as smallpox, cholera, tuberculosis, typhoid, and especially malaria were common in the city. But, today, the most dangerous of these diseases are kept in check. The city's medical facilities include a general hospital with specialist clinical apparatus, the Lady Templer Tuberculosis Hospital, the Institute for Medical Research, and five maternity and infant welfare clinics. In 1962, work began on a new teaching hospital at the University of Malaya.

Cultural Life. Kuala Lumpur has a richly varied cultural life, mainly because of the multi-racial character of its people. Each of the city's main racial groups has its own distinctive culture. Over the years, they have been little influenced by one another. Each group speaks its own language, using English and Malay as common languages.

The city has a national museum, a national art gallery, two large stadiums, and an auditorium where concerts and plays are performed. The National Art Gallery holds exhibitions of paintings from time to time. Its collection includes a large number of paintings by Malaysian artists.

Publishing and Broadcasting. Ten newspapers are published in Kuala Lumpur. Three of them—the *Straits Times,* the *Malay Mail,* and the *Malayan Times*—are in English, two in Malay, two in Chinese, two in Tamil, and one in Punjabi. Most of these papers are read throughout Malaysia. World agen-

cies handle the flow of news to and from Kuala Lumpur. Radio Malaysia has its headquarters in Kuala Lumpur. It broadcasts its domestic service in Malay, English, Chinese, and Tamil, and its overseas service in Indonesian, English, and Chinese. In 1964, a television service was introduced in the city.

Industry, Trade, and Transport

Kuala Lumpur is primarily an administrative centre. But it is also a marketing and distributing centre for its surrounding areas. In recent years, it has become an industrial centre second only to Singapore in importance. Most modern industrial development is concentrated in Petaling Jaya, a satellite town about 11 kilometres from Kuala Lumpur, on the main highway to Port Swettenham.

Petaling Jaya has an area of 1,600 hectares and a population of 40,000. It includes sections for industry, commerce, housing, schools, and recreation. It has more than 8,000 homes and about 150 factories. Factors that have contributed to its growth as an industrial centre include its attractive location and the availability of public utility services. In order to encourage development, the government grants concessions to firms that establish industries in the area. In some cases, it allows them tax reliefs for periods of up to five years. It has introduced tariffs to protect the new industries, and has abolished duties on the raw materials that they need.

Kuala Lumpur is the hub of road, rail, and air transport in Malaya. First-class roads link it with all parts of Malaya and with Singapore. Railways run north to Bangkok and south to Singapore. The city is also served by a new international airport at Subang, 19 kilometres away. The roads within the city carry a large volume of traffic, and traffic jams are common. Visitors can travel about the city by bus, taxi, or trisha. A *trisha* is a three-wheeled vehicle that is propelled by pedalling.

Things to See and Do

Kuala Lumpur has a large number of tall, modern buildings. One of the most impressive of these is Parliament House, which stands 76 metres high in the city's Lake Gardens. The gardens consist of two small lakes surrounded by lawns with trees and flowering shrubs. The National Museum stands at one of the entrances to the Lake Gardens. It is built in the Malayan style, and has two large murals illustrating Malaysian history and crafts. The other tourist attractions of the city include the Royal Palace, Federal House, the National Art Gallery, the Sultan Suleiman Mosque, the Chinese Temple in Jalan Ampang, and the Hindu Temple in Leboh Bandar.

On the outskirts of the city is the Royal Selangor Golf Club, which has two 18-hole golf courses and a swimming-pool. Pantai Valley, the site of the University of Malaya, lies a short way outside the city centre, along the highway to Port Swettenham. Also on the outskirts of the city, at Petaling Jaya, is the world's largest tin dredge.

The Batu Caves lie 11 kilometres north of Kuala Lumpur, on the road leading to Ipoh. The caves are part of a large limestone outcrop and are the home of innumerable bats and white snakes. A Hindu shrine in the largest of the caves can be reached by a flight of 272 steps. Thousands of Hindus visit the shrine each year during the Hindu festival of Thaipusam. The Templer National Park, farther along the road to Ipoh, is named after Sir Gerald Templer, a former British high commissioner. The park is an area of rain forest, with mountain streams and waterfalls. The towering limestone outcrop of Bukit Takun overlooks the park.

Government

A commissioner appointed by the Malaysian head of state, the Yang di-Pertuan Agong, heads the local government of Kuala Lumpur. An advisory board of six senior government officers and five unofficial members appointed by the head of state helps the commissioner in his work. The commissioner and the advisory board are responsible to the minister of the interior, who has power to give general instructions to them. Until 1961, Kuala Lumpur had a municipal council consisting of an official president and 12 elected and 6 nominated members.

History

The history of Kuala Lumpur is linked closely with the history of tin mining in Selangor. In 1857, the first miners made their way up the Klang River and found large deposits of tin where the Gombak meets the Klang. In 1859, two Chinese set up a trading post in the area. Kuala Lumpur had a period of unrest during which various groups, including the Chinese miners and the Malay aristocracy, struggled to gain control of the rich tin resources and the right to collect export duties on tin. Yap Ah Loy, an assistant to the first local governor, emerged victorious from these struggles. Later, he became the *Capitan China* (Chinese captain) of Kuala Lumpur, and developed the area in the period before British rule.

In 1874, the British gained control of Selangor and established a British resident at Klang. But Kuala Lumpur was expanding rapidly, and it became the capital of the state in 1880. When F. A. Swettenham became resident in 1882, he rebuilt the town, tearing down the flimsy, old houses and replacing them with new brick and tile buildings. In 1886, the first railway line from Klang to Kuala Lumpur was completed. Plantation agriculture was introduced into Selangor, and Kuala Lumpur soon became a distributing centre for both the tin and the agricultural industries. In 1909, it became the capital of the Federated Malay States of Perak, Selangor, Negri Sembilan, and Pahang. In 1948, it became the capital of the Federation of Malaya, and, in 1963, the capital of Malaysia.

Related Articles in the Australasian volumes of WORLD BOOK include:

Architecture (pictures)	Klang
Batu Caves	Selangor
Government of Malaysia	Swettenham, Sir Frank

KUANTAN. See PAHANG (The Life of the People) in the other Australasian volume.

Dept. of Tourism, Malaysia

Kuching, the capital of Sarawak, is a busy port. Part of the town lies along the east bank of the Sarawak River.

KUCHING (pop. 63,491), is the capital of Sarawak, one of the states that make up Malaysia. It is the largest town in northern Borneo and the chief port and economic centre of Sarawak. Its main exports are pepper, rubber, and timber.

Kuching lies on the east bank of the Sarawak River, 29 kilometres (18 miles) from its estuary at Muara Tebas. A network of roads connects Kuching with the interior. Daily flights and a shipping service link Kuching with Singapore and Kuala Lumpur.

Kuching has an area of 21 square kilometres (8 square miles). The town centre consists mainly of closely built Chinese shop-houses, forming the most overcrowded and oldest part of the town.

Most of the people of Kuching work in jobs related in some way to the export and import trade. Kuching serves as an exporting centre for the primary products of south-western Sarawak, such as rubber and pepper. Kuching is largely Chinese in character. About seven out of every ten of its people are Chinese.

Kuching dates from the early part of the 1800s. In 1840, the town consisted of about a dozen huts close to the muddy bank of the river. The city began to grow after Sir James Brooke, the first white rajah, took it over in 1841. In 1850, Chinese immigrants from Kalimantan began to settle in the town. They played an important part in searching for gold and developing the agricultural area near the town.

See also SARAWAK in the other Australasian volume.

KUKUKUKUS are people who live in a rugged mountain area of New Guinea between the Huon Gulf and the Gulf of Papua. The nearest government post is Menyamya. The population is about 60,000. Kukukukus are nomadic, shifting from one area to another, raising subsistence crops. At one time the Kukukuku people had a reputation for being among the fiercest warriors in New Guinea. They were feared by Papuan coastal tribes, whom they frequently raided. Their lands are not productive and the people are quite poor, even by New Guinea standards. In recent years, some of the Kukukukus have left their land to work in towns near the coast.

KULA is a system of gift exchange, accompanied by elaborate ritual ceremonies, found among the peoples of the islands southeast of Papua. Two kinds of valuable objects—red shell necklaces and white armshells—form the gift offered and the gift received in exchange. Only men are involved in this annual ceremony. The giving takes place at home and the receiving abroad. In this way the necklaces circulate clockwise and the armshells anticlockwise among the islands. For this reason, the name *kula-ring* is sometimes used to describe the kula system. The kula relationship between two men is traditionally a lasting one.

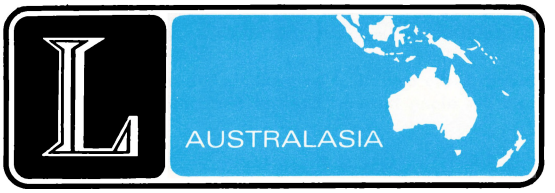
The great importance of the kula was to establish peace where otherwise there would be war. It also developed trade in articles other than the shell ornaments, and in foodstuffs, among the peoples of these islands.

KUPANG (pop. 7,171) is the capital of the Indonesian province of East Nusa Tenggara. It stands on the south-western tip of the island of Timor. For location, see INDONESIA (colour maps) in this volume. It is an administrative and commercial centre, and is a major port, handling exports of coffee, maize, and sandalwood from the surrounding region. The University of East Nusa Tenggara is at Kupang. An airport lies near the city. See TIMOR, INDONESIAN, in the other Australasian volume.

KUPE. See HISTORY OF NEW ZEALAND (The Maori Voyagers [950-1350]) in this volume.

KURNELL, on the southern headland of Botany Bay, was the first landing place of James Cook when he charted the east coast of the Australian continent. Cook anchored off the peninsula of Kurnell on April 29, 1770. Isaac Smith, a young midshipman, was probably the first ashore. The party explored the area, encountered a family of Aborigines, and found black soil that they thought could produce any kind of grain. Today, Kurnell is a suburb of Sydney. A public park surrounds the original site were Cook landed. See also HISTORY OF AUSTRALIA (Cook's First Voyage) in this volume.

KWINANA (pop. 12,208) is an industrial town in Western Australia. It stands on Cockburn Sound, just south of Fremantle. For location, see WESTERN AUSTRALIA (map) in the other Australasian volume. Kwinana has one of the largest oil refineries in Australia. It treats more than 3 million tonnes (3 million tons) of petroleum a year. The town also has a steel rolling mill, an alumina plant, and a cement works. The steel rolling mill can handle about 50,800 tonnes (50,000 tons) of steel a year. The alumina plant processes bauxite from the Darling Range. Kwinana was a holiday and fishing resort until 1952, when work began on the oil refinery.



LABOR PARTY. See POLITICAL PARTIES OF AUSTRALIA in the other Australasian volume.

LABOUR DAY is a holiday in Australia and New Zealand. In Australia, people also call it *Eight-Hour Day* because it marks the achievement of an eight-hour working day by various groups of workers between 1855 and 1900. It was the first important victory of the Australian trade unions.

In New South Wales, Labour Day is celebrated on various days in various parts of the state. In Queensland, it is May 1 or the following Monday; in South Australia, the second Monday in October; in Victoria, the second Monday in March; and in Tasmania and Western Australia, the first Monday in March. In New Zealand, Labour Day is celebrated on the fourth Monday in October.

LABOUR MOVEMENT. See TRADE UNIONS (History) in the other Australasian volume.

LABOUR PARTY. See POLITICAL PARTIES OF NEW ZEALAND in the other Australasian volume.

LACHLAN is a river in New South Wales. It rises near Cullerin, in the Great Dividing Range, and flows into the Murrumbidgee River. It is almost 1,500 kilometres (930 miles) long, and its basin has an area of about 67,340 square kilometres (26,000 square miles). For location, see NEW SOUTH WALES (map) in the other Australasian volume.

LACROSSE is played by about 2,000 people in Australia, mainly in Victoria, South Australia, and Western Australia. Few people play the game in Indonesia, Malaysia, or New Zealand. For a description, see LACROSSE in the main volumes. The controlling body in Australia is the Australian Lacrosse Council. The Australian Lacrosse Championships are held once every three years for the Garland-McHarg Cup. L. L. Mount, a Canadian, introduced the game to Australia in 1874. Lacrosse became popular in the early 1900s. It lost support during World War II, and failed to regain popularity in New South Wales, Queensland, and Tasmania. Australia sent a team overseas in 1962 to play in the United States and Britain.

LAE (pop. 34,699) is the administrative centre of Morobe district of Papua New Guinea. It lies at the mouth of the Markham River, on the Huon Gulf, which is on the north-eastern coast. It is Papua New Guinea's major shipping port. Lae is a major industrial centre, supplying the territory with a variety of industrial and commercial products.

Before the establishment of the Lae airstrip in 1928, the base of aircraft operations to the gold fields of Edie Creek and Bulolo was at Salamaua. Lae developed through the need for better airstrip facilities to carry heavy equipment to the Highlands. It was captured by the Japanese in March, 1942, and recaptured in an important battle in September, 1943. During this battle, it was completely destroyed. The town was re-built in 1945.

LAHEY, VIDA (? -), a Queensland painter and teacher, became known for her work in art education for children and for her book, *Art in Queensland, 1859-1959,* published in 1959. FRANCES VIDA LAHEY was born at Pimpana in Queensland. She studied first in Brisbane, then at the art school of the National Gallery of Victoria, and finally with a member of the Heidelberg School, Walter Withers. She travelled and worked in Europe and exhibited in Paris at the Paris International Exhibition in 1937, and in London at the New English Art Club and the Empire Exhibition in 1938.

LAKATOI was a large sailing vessel used by the Motu people of Port Moresby in special yearly trading trips along the coast of the Gulf of Papua westwards from Port Moresby. These voyages were known as *hiri.* The ships sailed outwards at the end of the south-east trade season, which lasts from October to December, and took from 7 to 10 weeks for the outward and return trip. Pottery was the main product taken on the outward voyage and sago the main one brought back on the homeward voyage.

The people built a *lakatoi* by joining together from two to fourteen large dug-out canoes, 10 to 17 metres (33 to 56 feet) in length. They attached the canoes to many crossbeams, tying them with lashings that passed through square holes cut in the gunwales. Then they built a platform to form a deck. On many *lakatoi* they added sidewalls of plaited matting and roofed shelters fore and aft. They carefully selected mangrove tree trunks to form the two masts. Each mast carried distinctive crab-claw sails made by sewing plaited mats together. Canvas sails replaced the matting soon after the coming of Europeans.

See also SHIP (picture) in the main volumes; KULA in this volume; and MOTU in the other Australasian volume.

LAKE AMADEUS is a large lake in the Northern Territory of Australia. It lies about 274 kilometres (170 miles) south-west of Alice Springs. For location, see NORTHERN TERRITORY (map) in the other Australasian volume. For most of the year, the lake is a waterless waste of blue, salt mud. Ernest Giles explored the area in 1872 and named the lake after Amadeo, Duke of Aosta, who was then king of Spain.

LAKE BURLEY GRIFFIN is an artificial lake in Canberra, in the Australian Capital Territory. It was planned as a series of small lakes by the city's designer Walter Burley Griffin. The Molonglo river is dammed at Scrivener Dam, forming a single lake of three basins. Kings Avenue and Commonwealth Avenue cross the lake, uniting the sectors of Canberra.

The lake's capacity is 27,753,750 cubic metres (22,500 acre feet), its length 10·95 kilometres (6·8 miles), and its foreshore about 35 kilometres (22 miles). At the western end, the formal lawn banks change to a natural wildlife reserve. A carillon stands on Aspen Island, near Kings Avenue bridge. A water jet near Regatta Point sends up a column of water 137 metres (450 feet) high above the central basin. Parkes Drive and other roads allow a circuit of the foreshore in a car. Among many public buildings, the National Library dominates the lake.

See also CANBERRA (colour picture) in this volume.

LAKE CARGELLIGO lies 568 kilometres (353 miles) west of Sydney in a wheat-growing district in the central west of New South Wales. The lake is a wildlife sanctuary. The explorer John Oxley discovered the lake in 1817.

LAKE COLERIDGE lies in the central part of the South Island of New Zealand, in the foothills of the Southern Alps. For location, see CANTERBURY (map) in this volume. It covers about 47 square kilometres (18 square miles), and is 207 metres (680 feet) deep at its deepest point.

LAKE EACHAM AND LAKE BARRINE are two crater lakes on either side of the Gillies Highway on the Atherton Tablelands west of Cairns in northern Queensland. Both have walls of soft volcanic ash covered with tropical rain forest.

Lake Eacham is 755 metres (2,478 feet) above sea level. It covers 51 hectares (126 acres) and is on an average 69 metres (226 feet) deep. Lake Barrine, 5 kilometres (3 miles) to the north of Lake Eacham, is the largest lake on the Atherton Tablelands. It is 104 hectares (256 acres) in area and about 110 metres (360 feet) deep.

LAKE EUCUMBENE is an artificial reservoir located in the Snowy Mountains of New South Wales. It was formed by the Eucumbene Dam, which provides the major regulating storage for the Snowy Mountains Hydro-Electric Scheme. The dam was completed in 1958. The first trans-mountain diversion of water from Lake Eucumbene to the Tumut River was accomplished by the completion of the Eucumbene-Tumut tunnel in 1959. The Murrumbidgee-Eucumbene Tunnel came into operation in 1961.

The first stage of the Snowy-Murray development was the Eucumbene-Snowy project, involving the construction of Island Bend Dam and the Eucumbene-Snowy tunnel. It began diverting water from the Snowy River into Lake Eucumbene in 1965.

The nearest large town and railhead is Cooma. Tourist activities include launch excursions on the lake, trout fishing, and camping. Tourist resorts include Buckenderra, Old Adaminaby, Illawong, Providence, and Braemar.

See also SNOWY MOUNTAINS SCHEME in the other Australasian volume.

LAKE EYRE is the largest lake in Australia. It lies in central northern South Australia. For location, see SOUTH AUSTRALIA (map) in the other Australasian volume. Lake Eyre is nearly divided into two lakes, which are joined by the narrow Goyder channel. The northern part is 145 kilometres (90 miles) long and 64 kilometres (40 miles) wide and the southern part is 61 kilometres (38 miles) long and 26 kilometres (16 miles) wide. The lake covers 9,583 square kilometres (3,700 square miles).

Lake Eyre lies in an area that generally receives less than 127 millimetres (5 inches) of rain a year. As a result, its surface is usually a dry area covered by a salt crust up to 4·5 metres (15 feet) thick. The lake is filled only in times of unusual rainfall, such as 1949 and 1950.

Lake Eyre was discovered by the explorer Edward John Eyre in 1840. George Woodroffe Goyder, Surveyor General of South Australia, named the lake in honour of Eyre in 1860.

Lake Eyre, the largest lake in Australia, is usually a dry area covered by a thick crust of salt. The lake fills only rarely.
David Beal, Photographic Library of Australia

Lake George, in New South Wales, becomes dry in some years because of low rainfall and high evaporation.

Australian News and Information Bureau

LAKE FROME is one of a chain of salt lakes in the north-eastern corner of South Australia. It lies about 256 kilometres (160 miles) north-east of Port Pirie, in a sparsely populated pastoral area. It is about 96 kilometres (60 miles) long and 48 kilometres (30 miles) wide. The lake is dry for most of the year. But it sometimes collects from 102 to 254 millimetres (4 to 10 inches) of water during rainy periods. At one time, people believed that it was connected with Lake Torrens, but this belief was proved to be wrong in 1860. For location, see SOUTH AUSTRALIA (map) in the other Australasian volume.

LAKE GEORGE lies in New South Wales, 32 kilometres (20 miles) north-east of Canberra. It is about 600 metres (2,000 feet) above sea level. When the lake is full, it is about 25 kilometres (16 miles) long and 10 kilometres (6 miles) wide, and covers an area of 96 square kilometres (60 square miles). The lake dries up from time to time. At times of high rainfall and low evaporation, Lake George is stocked with fish and can be used for boat racing. At other times, its bed is a grassy plain that can be tilled to grow crops. For location, see NEW SOUTH WALES (map) in the other Australasian volume.

LAKE HINDMARSH is the largest freshwater lake in Victoria. It has an area of 12,000 hectares (30,000 acres). It has a shore line of over 64 kilometres (40 miles) but it has a fluctuating water surface because it dries up in dry years and becomes an area of salt-encrusted flats.

Lake Hindmarsh lies in Dimboola Shire, about 5 kilometres (3 miles) north-east of Jeparit. It is fed by the Wimmera river, which flows north from the high rainfall area of the Grampians.

LAKE ILLAWARRA is a coastal lagoon located on the south coast of New South Wales. It is about 10 kilometres (6 miles) south of the city of Wollongong, between Port Kembla and Shellharbour. It has an area of about 32 square kilometres (12 square miles) and is fairly shallow. Macquarie Rivulet and Mullet Creek are the main streams flowing into the lake. The entrance is protected from the sea by Windang Island. The entrance is frequently closed because of the build-up of sand banks.

LAKE MACQUARIE is a large coastal lagoon in New South Wales. It is about 100 square kilometres (62 square miles) in area and is located about 15 kilometres (9 miles) south of Newcastle. It is fed by several small creeks, the largest of which are Dora Creek and Cockle Creek. Lake Macquarie opens into the sea at Lake Entrance, near the coastal town of Swansea. Other main towns on the lake shore are Toronto, Wangi Wangi, and Belmont. The Vales Point and Wangi thermal power generating stations draw their water supplies from the lake. The lake is a popular holiday resort, providing excellent boating, fishing, and prawning.

LAKE MANAPOURI is one of the most beautiful lakes in the South Island of New Zealand. It is also the site of a large underground hydro-electric power station. *Manapouri* is a Maori word meaning *lake of the sorrowing heart.* The lake is 19 kilometres (12 miles) long at its longest part, 10 kilometres (6 miles) wide at its widest part, and 437 metres (1,458 feet) deep. It is studded with islands. The countryside around Lake Manapouri is a popular holiday resort. For location, see OTAGO (map) in the other Australasian volume.

LAKE PEDDER. See CONSERVATION in this volume.

LAKE ROTOITI lies in the North Island of New Zealand. *Rotoiti* is a Maori word meaning *little lake.* The Ohau Channel connects the lake to the larger Lake Rotorua. Lake Rotoiti covers an area of 36 square kilometres (14 square miles) and is 69 metres (230 feet) deep. The Kaituna River flows from it into the Bay of Plenty. The road from Rotorua to Tauranga follows the lake's western shore and the road from Rotorua to Whakatane follows part of its southern shore.

LAKE SAINT CLAIR lies at the southern end of the Cradle Mountain-Lake St. Clair National Park on the central plateau of Tasmania. The lake has an area of 2,851 hectares (7,045 acres). The lake is the source of the Derwent River, the biggest river in the island. Bushwalkers can travel the length of a track through the park in three days. Shelter huts are placed within easy walking distance because of possible sudden changes from summer weather to blizzard conditions.

Lake Te Anau is the largest lake in the South Island of New Zealand. It is also one of the most beautiful.

New Zealand National Publicity

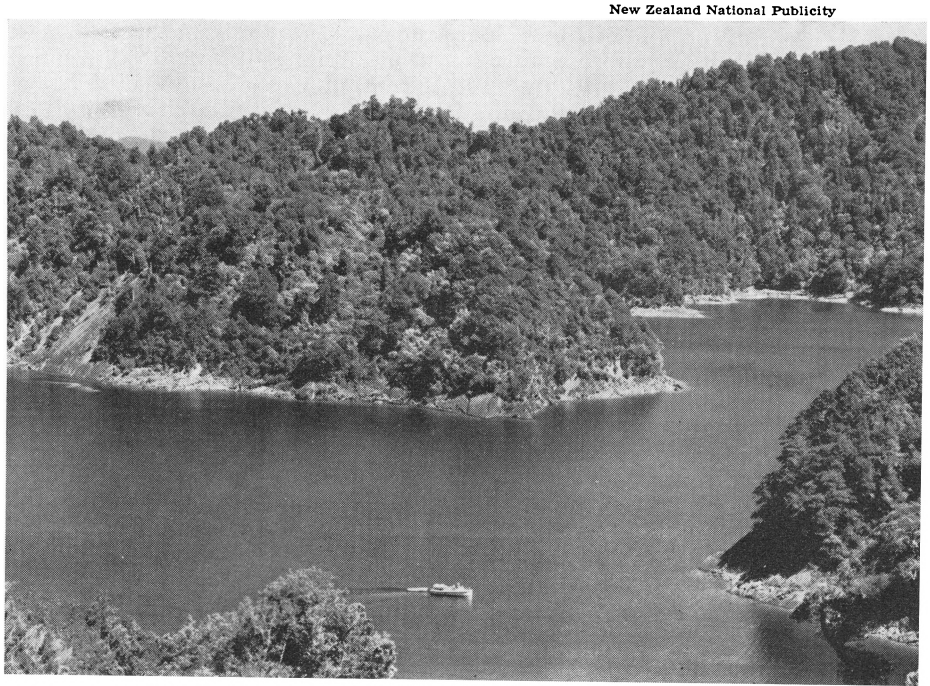
LAKE TAUPO, situated almost in the centre of the North Island, is New Zealand's largest lake. It is 27 kilometres across at its widest point, and is 40 kilometres long. The Waikato River, the longest river in New Zealand, flows from Lake Taupo. The township of Taupo, a trout-fishing centre, is near the northern edge of the lake. To the south, visitors can see the volcanic peaks of Tongariro, Ruapehu, and Ngauruhoe. Hot springs rise from the earth in many places on the northern and southern shores. For location, see AUCKLAND (province; map) in this volume.

LAKE TE ANAU is the largest lake in the South Island of New Zealand. It covers an area of 342 square kilometres, and is more than 64 kilometres long, with three long channels that reach out to the mountains in the west. Many of the peaks around the lake rise to more than 1,800 metres above sea level. Te Anau, a small town at the southern end of the lake, is a popular holiday resort. Visitors can take boat trips on Lake Te Anau. The lake is also the starting-point of the Milford Track, a three-day walk to Milford Sound. For location, see OTAGO (map) in the other Australasian volume.

LAKE TYRRELL is a salt lake in north-western Victoria. It lies in the Mallee lands, about 320 kilometres north-west of Melbourne and 64 kilometres west of Swan Hill. Lake Tyrrell is usually dry. A crust of salt covers the soft mud of its bed, which contains gypsum. The town of Sea Lake stands at the southern end of the lake. It has a factory that extracts salt from the lake bed. Tyrrell Creek, a tributary of the Avoca, carries water to the lake from time to time. Edward Eyre explored the area in 1838, and named Lake Tyrrell and Tyrrell Creek after an early pioneer. For location, see VICTORIA (map) in the other Australasian volume.

LAKE WAIKAREMOANA lies in the Urewera National Park, in the North Island of New Zealand. The area around the lake is a wild-life reserve, which consists of several bush-clad mountains that rise 610 metres above sea level. The lake is 19 kilometres long and 10 kilometres wide. It is star-shaped, and covers an area of 54 square kilometres. Its water is used to generate electricity in several power stations. For location, see AUCKLAND (province; map) in this volume.

New Zealand National Publicity



Lake Waikaremoana, in New Zealand's North Island, lies in the centre of an attractive wild-life reserve.

LALLAH ROOKH. See TRUGANINI in the other Australasian volume.

LALOR, PETER (1827-1889), was the leader of gold-miners in Victoria during the troubles at the Eureka stockade. The miners were resentful because they had few rights as citizens, were not represented in the state parliament, and had to pay large fees for the right to mine gold. The miners began rioting in 1854. When the Victorian government sent troops to the Ballarat gold-field to quell the disturbances, the aggrieved miners appointed Lalor as their leader. Under Lalor, they formed the Ballarat Reform League and built the Eureka stockade (see EUREKA STOCKADE in this volume). On Dec. 3, 1854, troops attacked the stockade, killing about 30 miners. Lalor escaped, but was wounded in the arm and had to have it amputated. He remained in hiding until a jury acquitted 13 other leaders of the rebellion.

The Mitchell Library

Peter Lalor

The government eventually granted the miners representation in parliament. Lalor began his political career as the miners' representative in the Legislative Council in 1855. In 1880, he was elected speaker of the Victorian House of Assembly. He retired from politics in 1887. Lalor was born in County Laois, in Ireland, and was educated at Trinity College, Dublin. He emigrated to Australia in 1852 to seek his fortune.

See also HISTORY OF AUSTRALIA (Gold [1851-1861]) in this volume.

LAMBERT, ERIC. See LITERATURE OF AUSTRALIA (The Third Period [1920-]) in this volume.

LAMBERT, GEORGE WASHINGTON (1873-1930), an Australian artist, painted *Across the Black Soil Plains.* This painting of a magnificent team of toiling Clydesdale horses earned him the New South Wales Society of Artists' Travelling Scholarship in 1899, and also the Wynne Prize in 1900. Afterwards, Lambert modelled his style in painting and sculpture after the Florentine mannerist, Agnola Bronzino (1503-1572). Like Bronzino, Lambert attained extraordinary technical proficiency. Lambert was born in St. Petersburg (now Leningrad), Russia, the son of American parents. His father died soon afterwards, and his mother eventually settled in Australia. Lambert became the most famous student of Julian Ashton, who ran the best-known art school in Australia from 1900 to 1940.

LANCELIN, a flourishing centre for the crayfishing industry, lies north of Perth, in Western Australia. The crayfishing industry is based between the Murchison River and Bunbury. At the Abrolhos Islands and along the nearby coast, fishing is carried out in shallow water. But in the Fremantle-Lancelin-Cervantes grounds, it is an offshore, deep-reef industry, involving larger boats and crews, longer pot lines, and mechanical handling winches. Carrier boats streamline operations by transporting the catches quickly to Fremantle. The industry is protected from over-fishing by such conservation measures as closed seasons, fishing zones, types of lobster pots and boats, and minimum sizes of lobsters. Exports amount to $A18 million a year. This industry began during World War II when crayfish were exported to American servicemen serving in the islands north of Australia.

LANDSBOROUGH, WILLIAM (1825-1886), an explorer, was appointed head of one of the expeditions organized in 1861 to look for the lost and ill-fated Burke and Wills exploration party. In a journey lasting 16 months, Landsborough travelled from near the Gulf of Carpentaria overland to Melbourne. On the way, he discovered the Gregory and Georgina rivers and the Barkly Tablelands. Landsborough was born in Ayrshire, in Scotland, and settled in Australia as a youth.

LANDY, JOHN (1930-), an Australian runner, was the second man in the world to run a mile in less than four minutes. He performed the feat at Turku, Finland, in June, 1954, setting a record time of 3 minutes 58 seconds. The British runner Roger Bannister had run a mile in less than four minutes one month earlier (see BANNISTER, ROGER, in the main volumes). Landy was born in Melbourne and attended Melbourne University.

LANE, WILLIAM (1861-1917), an Australian socialist, was one of the leaders of the trade union movement in Australia. In the 1880s, he persuaded trade unions in Queensland to join together to form the Brisbane Trades and Labour Council. He also persuaded them to establish the Australasian Labour Federation with the aim of contesting elections. This was the first form of labour party in Australia.

The Mitchell Library

William Lane

Lane's efforts had little success. The trade unions lost much of their influence during the depression of the 1890s, and most attempts at strike action failed because the unions were not properly organized. But Lane remained determined to prove that his socialist ideas could work successfully in practice. He organized and led various socialist experiments in Paraguay (see PARAGUAYAN SETTLEMENTS in the other Australasian volume).

Lane was born at Bristol, in England. He settled in Australia in 1882. From 1883 to 1885, he was labour correspondent for two Brisbane newspapers. In 1887, he founded his own socialist weekly paper *The Boomerang.* In 1899, after several years in Paraguay, he settled at Auckland, in New Zealand.

See also HISTORY OF AUSTRALIA (The Birth of the Nation [1890-1901]) in this volume.

LANG, JOHN. See LITERATURE OF AUSTRALIA (The Development of the Novel) in this volume.

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John Dunmore Lang

LANG, JOHN DUNMORE (1799-1878), the founder of the Presbyterian Church in Australia, also played an active part in political life. He fought to establish better facilities for education, to end the transportation of convicts to the colony, and to encourage the migration of free settlers. His blunt and forceful manner earned him many enemies, but his enthusiasm and energy also contributed greatly to the early development of Australia.

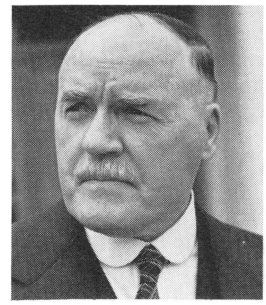
Lang was born at Greenock, in Scotland, and was educated at Glasgow University. He became a preacher in 1820, and sailed to Sydney in 1822 to join his younger brother, who had emigrated to the colony a year earlier. John Lang immediately began to establish the Presbyterian Church in the colony.

In 1831, Lang persuaded the British government to assist 140 Scottish craftsmen and their families to settle in Australia, so that they could help to build a Presbyterian school. The scheme was successful, and Lang became a strong advocate for assisted migration from Britain. He made several visits to Britain to encourage free settlers to move to Australia, and urged that money from the sale of Crown lands should be used to assist them with their expenses.

In 1843, the people of the Port Phillip district elected Lang as their representative in the Legislative Council. He unsuccessfully led a campaign for the separation of Port Phillip from New South Wales. He led a similar campaign for the separation of Queensland from New South Wales in 1854. He also argued that Australia should become independent of Britain, and wrote many articles advocating a union of republican states in Australia.

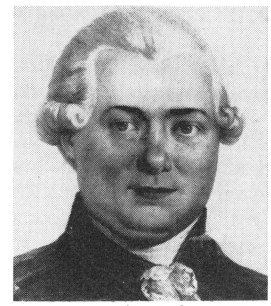
LANG, JOHN THOMAS (1876-), was premier of New South Wales from 1925 to 1927 and from 1930 to 1932. He worked to combat an economic depression during his second term as premier.

In 1929, the financial crisis in the United States led to the collapse of Australia's export trade. People's earnings rapidly decreased and many factories closed down. By 1932, one out of every three Australians was out of work. Many people lived on the dole. Lang, as premier of New South Wales, devised the *Lang Plan*. He urged the federal and state governments to suspend interest on British loans and reduce interest on government bonds. But, during a conference in 1930, the state premiers adopted the *Premiers' Plan,* which was opposed to that of Lang. The Premiers' Plan involved cutting public servants' salaries and pensions, and raising taxes. The dispute over which plan to adopt caused a split in the governing Labor party. The New South Wales members of the federal Labor party voted against the government, and the government fell. Joseph Lyons, leader of the United Australia Party, became prime minister (see LYONS, JOSEPH, in this volume).



Australian News

J. T. Lang



The Mitchell Library

Jean La Pérouse

Meanwhile, Lang refused to pay interest on government bonds held in New South Wales. Lyons paid the debt to bondholders, then passed a federal act to seize the same amount of money from New South Wales government funds. Lang withdrew state funds from banks and refused to pay the money. Sir Philip Game, the governor of New South Wales, intervened and dismissed him from office. Lang lost the state election that followed.

Lang was born in Sydney. He first entered the New South Wales parliament in 1913. During 1916 and 1917, he led the opposition in New South Wales to conscription (see CONSCRIPTION in this volume). He became leader of the New South Wales Labor party in 1922, and remained in that position until 1939. As premier between 1925 and 1927, he pioneered such social services as widows' pensions and child endowment. He also carried out many public works schemes in the state, including the construction of the Sydney Harbour Bridge. He remained a member of the state parliament until 1946. From 1946 to 1949, he was a member of the federal House of Representatives.

See also HISTORY OF AUSTRALIA (Between the Wars [1918-1939]) in this volume.

LANGKAWI ISLANDS. See KEDAH in this volume.

LANNEY, WILLIAM. See KING BILLY in this volume.

LA PÉROUSE, JEAN FRANÇOIS (1741-1788), was a French navigator who sailed into Botany Bay only six days after Arthur Phillip arrived in the bay with the First Fleet (see PHILLIP, ARTHUR, in the other Australasian volume). La Pérouse entered Botany Bay on the morning of Jan. 26, 1788, and remained in the region until March 10, 1788. During his stay, his officers made friendly contact with the British officers of the First Fleet. He also buried the priest Louis Receveur at Frenchman's Bay. Today, a monument stands on the spot. The northern point of Botany Bay is now a Sydney suburb known as La Perouse.

La Pérouse was in charge of the French ships *La Boussole* and *L'Astrolabe*. He left France on a voyage of discovery in August, 1785. Before arriving in Botany Bay, he explored Easter Island, Hawaii, Alaska, the western coast of America, China, the Philippines, and Samoa. After leaving Botany Bay, La Pérouse disappeared. In 1826, a British navigator found evidence that he had been shipwrecked on Vanikoro Island, in the Solomon Islands.

LASCELLES, EDWARD (1847-1917), was a prominent Australian pastoralist. He was largely responsible for the development and settlement of the Mallee area in Victoria. He was born in Tasmania, and educated at Geelong, in Victoria. He began his career in a wool-broking company that he later owned. In 1878, he bought "Lake Corrong", a sheep station in the Mallee country. He cleared it and developed it for growing grain. With his interests in other holdings, he developed about 1,217 square kilometres (470 square miles) of land. He founded the town of Hopetoun, north-west of Melbourne. He was chairman of the Geelong Woolbrokers' Association and one of the first commissioners of the Geelong harbour trust.

LASSETER, LEWIS HAROLD BELL (? -1931), an Australian prospector, began an Australian legend. In 1930, he claimed that, as a youth, he had found a fabulous reef of gold in the Petermann Ranges, in the Northern Territory. He also claimed that a surveyor later charted the reef, but that his position was inaccurate by 160 kilometres (100 miles).

In 1931, some Sydney businessmen agreed to finance an expedition, with Lasseter as guide, to find the reef. Near Alice Springs, the expedition turned back, but Lasseter continued. For two months, Lasseter lived in a cave by the Hull River, in the Petermann Ranges, refusing help from local Aborigines. He finally died of starvation. In May, 1931, a settler discovered his body. Many people searched for *Lasseter's Reef*. In 1967, members of an expedition claimed to have found it.

LA TROBE, CHARLES JOSEPH (1801-1875), became superintendent of the Port Phillip district in 1839. The settlement was then governed as part of New South Wales. La Trobe advocated that it should be separated from New South Wales. In 1851, the Port Phillip district became the separate colony of Victoria. La Trobe was lieutenant-governor of the new colony from 1851 to 1854. He did much for the growing colony. He established a firm system of local government. When he attempted to introduce a system of licence fees for gold-mining, many miners revolted against the system. La Trobe was born and educated in London.

LATROBE VALLEY, in Victoria, is one of Australia's most productive river valleys. South of the Latrobe River, large deposits of brown coal have been developed as a major source of Victoria's electricity supply. Power stations in the valley produce nearly nine tenths of the state's electricity. For location, see VICTORIA (map) in the other Australasian volume.

The Latrobe Valley's coal reserves exceed 17,000 million tonnes (17,000 million tons). The coal deposits are at least 61 metres (200 feet) thick and lie close to the surface. The seams can be worked easily by open-cut methods.

The main towns in the valley are Moe, Morwell, Traralgon, and Yallourn. The main industries are power stations, briquette works, and pulp and paper mills. Other industries in the area produce textiles, clothing, and shoes.

LAUGHLAN ISLANDS are part of Papua New Guinea. The group, which consists of five islands and several islets and rocks, lies about 416 kilometres (260 miles) east of New Guinea.

LAUNCESTON (pop. 62,181) is the second largest city in Tasmania. It stands at the head of the River Tamar, about 64 kilometres (40 miles) from the northern coast, in a valley sheltered in the south by high mountains. It is about 200 kilometres (125 miles) by road north of Hobart.

Launceston is a city of old-world buildings set among parks and gardens. But it is also a thriving industrial centre in one of the richest farming areas in Tasmania. It has wool mills and railway workshops. It exports wool, apples, vegetables, minerals, and timber. An aluminium plant at Bell Bay, 48 kilometres (30 miles) north of Launceston, refines bauxite from Weipa, in Queensland. A hydro-electric power station at Trevallyn supplies electric power for the state grid. Airline services link the city with Burnie, Hobart, Melbourne, and Sydney, and with Flinders and King Islands. Tourist attractions in and around Launceston include Cataract Gorge, Suspension Bridge, a wildlife sanctuary, a museum and art gallery, and a conservatory in city park.

LAVALAVA. See POLYNESIANS (Clothing) in the other Australasian volume.

LAVER, ROD (1938-), was the second tennis player to win the Australian, French, United States, and Wimbledon titles in one year. He did so twice —in 1962 and 1969. He was born at Rockhampton, in Queensland, and named RODNEY GEORGE LAVER. He also won the Wimbledon singles final in 1961, 1962, and 1968. From 1959 to 1962, he played for the Australian Davis Cup team. He turned professional in 1962.

LAW. See the *Legal Systems* articles in this volume, such as LEGAL SYSTEM OF AUSTRALIA.

LAW, PHILLIP GARTH (1912-), an Australian explorer and scientist, was director of the Antarctic Division of the Department of External Affairs from 1949 to 1966. He was born at Tallangatta, in Victoria, and educated at Melbourne University. He joined the Australian National Antarctic Research Expeditions (ANARE) in 1947, and became its leader in 1949. He led the expedition in 1954 that set up the first permanent Australian station on the Antarctic mainland at Mawson in MacRobertson Land. In 1957, he set up another base at Davis, in Princess Elizabeth Land. In 1959, he took over Wilkes Station from the United States on behalf of the government. He was appointed vice-president of the Victoria Institute of Colleges in 1966.

LAWLER, RAY (1922-), an Australian dramatist, wrote the highly successful play *Summer of the Seventeenth Doll*. It was first performed in Melbourne in 1955 and London in 1957. This brilliant character play marks the establishment of the realist play in Australian literature. It deals with a group of cane cutters and barmaids in a city slum, exploring the accepted Australian myth of the superiority of the rugged out-door type of man. The plot is entertaining, taking unpredictable turns and ending unconventionally. The touches of irony, wisdom, and humour in the dialogue add to the play's realistic

effect. Tense situations, clearly defined characters, significant dialogue, and brilliant movement and structure make this play a vivid and effective drama. Lawler's characters speak what seems to be authentic, casual, Australian speech.

Lawler's other plays include *The Piccadilly Bushman* (1959), *The Unshaven Cheek* (1963), and a television play, *A Breach in the Wall* (1967).

RAYMOND EVENOR LAWLER was born in Melbourne. He left school at the age of 13 and worked for an engineering firm. Later he became a stage manager and then an actor and producer.

LAWRENCE, MARJORIE (1907-), an Australian soprano, overcame an attack of poliomyelitis to sing at the Metropolitan Opera in New York City. She was born at Dean's Marsh, in Victoria, and went to Paris to study singing in 1928. After singing at the Paris Opera and other European opera houses she made her debut at the Metropolitan in 1935. In 1941, she contracted poliomyelitis, but returned to the Metropolitan in 1942. After 1956, she taught in the United States. Her autobiography, *Interrupted Melody* (1949), was made into a film.

LAWSON, HENRY (1867-1922), was a poet and short-story writer. He ranked as the main figure of the traditional school of Australian literature during the 1890s. He was perhaps the most typically Australian author the country has produced.

Lawson's works include *While the Billy Boils* (1896), *In the Days When the World Was Wide* (1896), *On the Track* (1900), *Over the Sliprails* (1900), *Joe Wilson and His Mates* (1901), *Children of the Bush* (1902), *When I Was King* (1905), and *Mateship* (1911).

Lawson wrote of the struggles of people in both the country and the city. He could write knowledgeably about the hard life in the bush because of the harsh poverty and heart-breaking labour he had experienced on his family's farm, and from his travels as a *swagman* (tramp). He was a realist, a champion of the underprivileged, and a believer in *mateship* —fellowship based on equal opportunity for all. He envisioned the destruction of man by man in the city and of man by nature in the bush.

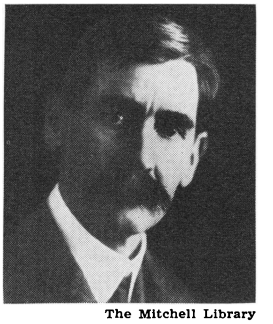
Poems written by Lawson have had great popularity. But they have been criticized for sentimentality, trite language, and clumsy use of metre and rhythm. Lawson's ballads ignore narrative in favour of character description and personal comment.

Lawson's real genius shows in his short stories. His prose has freshness and interest because he was not influenced by other writers. Lawson wrote forcefully about his own experiences and first-hand observations. His technique was masterly, his style economic, and his sincerity clear.

Lawson's deep feeling for the people of the outback is illustrated in stories such as "The Drover's Wife" and "Water them Geraniums", in which Lawson immortalized the courage, endurance, and acceptance of the bush women of his time. The stories generally are quite short, and are told in the first person. The easy colloquial language is strong and detailed. The stories contain the same humour and sentiments that are found in Lawson's verse, with even more emphasis on the concept of mateship. Lawson was not greatly concerned with plot but developed his themes through his characters. Of his few purely funny stories, "The Loaded Dog" is most famous. Lawson's mastery of the short story technique influenced other short-story writers.

Lawson was born in the goldfields near Grenfell, in New South Wales. He was the son of a Norwegian farmer. The family name was originally Larsen. His mother became an active worker for women's rights and started the magazine *Dawn*. Lawson had an unhappy childhood because his family was poor and his parents frequently quarrelled. He received a sketchy education and tried but failed to enter Sydney University. On leaving school, he helped on the family farm and worked at a variety of jobs.

From 1887 Lawson contributed stories and verse to *The Bulletin*. During 1892 he *carried his swag* (tramped) from Bourke to Hungerford and the following year worked in New Zealand. In 1894, his mother's press published Lawson's first book, *Short Stories in Prose and Verse*. Lawson was married in 1896, but became separated from his wife after an unhappy, homesick period in London. The final years of Lawson's life were extremely difficult because of poverty, ill health, and his heavy drinking.



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Henry Lawson

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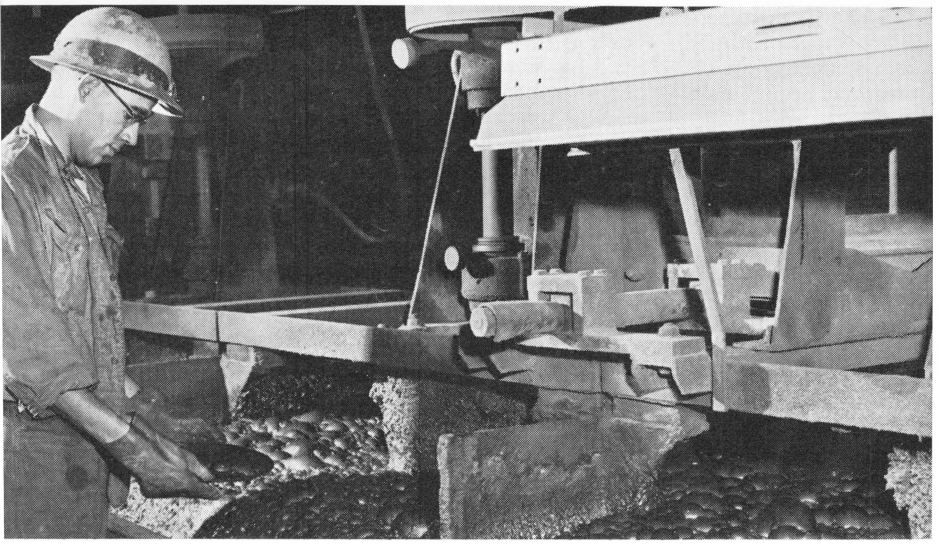
William Lawson

LAWSON, WILL (1876-1957), a popular balladist, wrote verse in both Australia and New Zealand during the early 1900s. He usually took his themes from bushland or seafaring life. His books of verse include *The Three Kings* (1914), and *Bill the Whaler* (1944). He also wrote novels. He was born at Gateshead, in England.

LAWSON, WILLIAM (1774-1850), an Australian explorer, crossed the Blue Mountains in May, 1813, with Gregory Blaxland and William Charles Wentworth. Lawson was born in London. He travelled to Sydney as an ensign with the New South Wales Corps in 1800. In 1808 and 1809, he was in charge of the settlement at Newcastle. He was commander of the Bathurst settlement from 1819 to 1823, and explored as far north as Mudgee. From 1843 to 1848, he was a member of the Legislative Council.

LAWU is a live volcano in east-central Java, in Indonesia. It rises to a height of 3,265 metres above sea level between the cities of Madiun and Surakarta. For location, see INDONESIA (colour maps) in this volume.



The Lead Flotation Unit at Mount Isa mines, in northwest Queensland, separates the lead ore by floating off the other metal ores.

Australian News and Information Bureau

LEAD MINING. Australia, the third largest producer of lead in the world, produces about 400,000 tonnes (393,600 tons) a year. Australia is believed to have reserves of more than 22 million tonnes (21·6 million tons) of lead. It refines only just under half of its production of ore. The remainder is exported. Indonesia, Malaysia, and New Zealand have no significant lead mines.

Where Lead Is Found. Most of Australia's lead is mined from the great reserves of sulphide ores at Broken Hill, in New South Wales. Four mines are still working to the north and south of the worked-out area of the original hill. These mines produce about 63 per cent. of Australia's lead.

The material dug out of the mines consists of rock and the mixed ores of lead and other metals. The ore is concentrated as much as possible at the mines. The various metal ores can be roughly sorted from quartz and other rocks, because they are much denser. The ores are further separated by *flotation,* in which air is bubbled through a mixture of the crushed ore, water, and chemicals (see FLOTATION PROCESS in the main volumes). At Broken Hill, lead sulphide is floated off first.

New Broken Hill has reserves of more than 6 million tonnes (5·9 million tons) of ore containing 9·1 per cent. of lead. North Broken Hill has more than 4 million tonnes (3·94 million tons) containing more than 10 per cent. lead. Zinc Corporation Ltd. has reserves of 6 million tonnes (5·9 million tons) containing 11·6 per cent. lead. The South Mine has limited reserves.

Mount Isa, in Queensland, has reserves of 54 million tonnes (53 million tons) of ore containing 6·9 per cent. lead.

The mines at Rosebery and Mount Read in Tasmania are unusual. In other regions, lead concentrates supply all the lead. In Tasmania, lead concentrates supply about 56 per cent. of the lead, lead-copper concentrates about 23 per cent., and zinc concentrates about 21 per cent.

Smelting and Refining Lead. After flotation, lead concentrate is fed into blast-furnaces with limestone, which forms a slag. Air is blown through the furnace and the metal is tapped off as pig lead, which contains traces of zinc, copper, and other impurities.

Lead produced in this fashion contains most of the original silver and gold and is called lead bullion. It is produced at Mt. Isa and Cockle Creek in New South Wales and exported from there. At Port Pirie in South Australia the lead bullion produced is refined to pure lead by adding zinc to the molten bullion. The zinc floats to the surface, carrying with it the silver and gold. The pure molten lead is then tapped off.

Using Lead. Australia uses about 61,000 tonnes (60,024 tons) of lead a year, leaving about 340,000 tonnes (334,560 tons) to be exported. The annual value of all lead exports is about $A 90 million.

Britain is Australia's best customer for bullion, and also takes about one-third of its refined lead exports. The United States and India also buy large quantities of refined lead from Australia. The United States is Australia's biggest market for lead ore and concentrates.

History. Lead-silver and lead-zinc ores were first discovered in Western Australia in 1848. They were discovered in Queensland in 1870 and in Tasmania in 1888. But the most significant date in the history of Australia's lead-mining industry is 1883, when Charles Rasp discovered the Broken Hill deposits. The Broken Hill Proprietary Company developed the central part of the deposits, working at first the lead oxide ores (see BROKEN HILL PROPRIETARY COMPANY LTD. in this volume). Later, the company developed the flotation process for separating lead and zinc ores. The company left Broken Hill in 1939. The resources at Mount Isa were discovered in 1923. The present company began operations there in 1931.

See also LEAD in the main volumes; BROKEN HILL in this volume; RASP, CHARLES, in the other Australasian volume.

LEAHY, MICHAEL JAMES (1901-), a farmer in Papua New Guinea, explored the Central Highlands of New Guinea during the 1930s. He was born at Toowoomba, in Queensland, and had a varied career in his early life. In Queensland, he worked as a railway clerk, a cane cutter, and a timber cutter. He went to New Guinea in 1926 and began prospecting for gold in isolated and unexplored parts of the island.

LECHENAULTIAS, also spelled LESCHENAULTIA, are a group of about 20 kinds of plants that grow in Western Australia. One species also grows in Malaysia. They are small, healthy undershrubs or *prostrate* (lying) plants with fairly large, attractive flowers. The best known species, *L. biloba,* is an upright plant a few inches high with brilliant blue flowers. Another, *L. formosa,* has bright red, maroon, or yellow flowers. Both kinds grow on the sand plains.

Scientific Classification. Lechenaultias are members of the family *Goodeniaceae.* They make up the genus *Lechenaultia.*

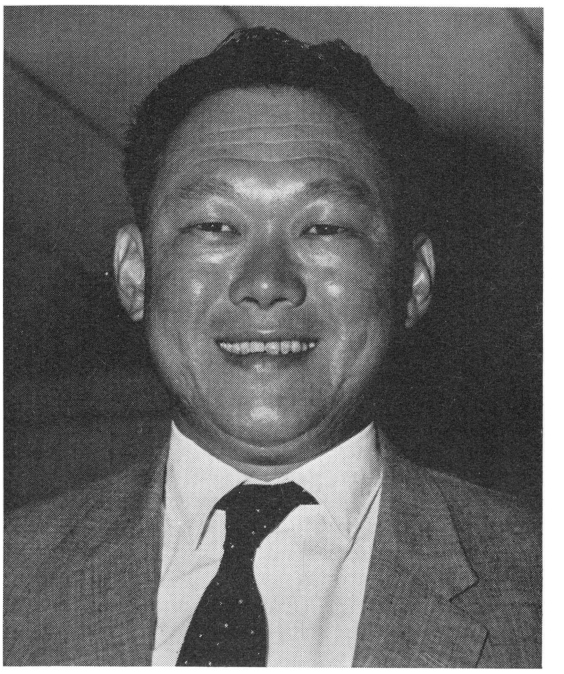
LEE, JOHN A. (1891-), was a socialist politician in New Zealand. He led a group of party members who disagreed with the policies of Michael Savage, then the prime minister, and other party leaders. He was expelled from the Labour party in 1940. Lee was a forceful orator, a novelist, and a prolific writer of political pamphlets. He was born at Dunedin and named JOHN ALEXANDER LEE. He became a Labour member of parliament in 1922.

LEE-JOHNSON, ERIC (1908-), a New Zealand painter, became well known during the 1950s for his paintings and drawings of northern New Zealand. He was born at Suva, in Fiji. He studied at Elam School of Fine Arts in Auckland and later at the Central School of Arts and Crafts in London.

LEE KUAN YEW (1923-), an outstanding Singapore statesman and political leader, became prime minister of Singapore in 1959. He led Singapore into the federation of Malaysia in 1963. But he faced political and personal disagreements with the leaders of the Malaysian federal government. Lee advocated socialist policies and wanted to establish a "Malaysian Malaysia" in which all racial groups would have equal rights and privileges. The leaders who controlled the Malaysian government advocated more conservative policies. Lee considered that they wanted to retain special privileges for Malays. Singapore left Malaysia in 1965 and became a fully independent country. Lee remained in power as its prime minister.

Lee Kuan Yew was born in Singapore. He was educated at Raffles Institution and Raffles College, in Singapore, and at Cambridge University, in England. He was a brilliant student, obtaining a first-class honours degree in law. He became interested in politics at Cambridge. In England, he supported the Labour party, but was critical of the country's colonial system. He returned to Singapore in 1950, determined to put an end to this system—at least in his own country.

In the early 1950s, Lee practised as a barrister in Singapore. He was a legal adviser to several trade unions, and soon became involved in politics. He



Camera Press

Lee Kuan Yew became prime minister of Singapore in 1959. He led Singapore to full independence in 1965.

helped to form the People's Action party (PAP) in 1954, and was elected to the Singapore Legislative Assembly in 1955. In its early years, the PAP obtained the support of Singapore trade unions. Later, the unions came progressively under the influence of communists. In 1957, Lee successfully defeated a communist attempt to take over the party. His determination to introduce social and economic reforms, as well as to resist communist subversion, won the support of the Singapore people. The PAP achieved an overwhelming election victory in 1959, and Lee became prime minister.

LEGACY is a voluntary organization of ex-servicemen caring for the widows and children of men who served Australia overseas in war areas. It was formed in Melbourne in 1923. There are now 46 clubs throughout Australia and one in London.

The widows and children of all men who served overseas in war are eligible for Legacy's assistance. It makes no difference if the man was killed in action or died after his return to civilian life. Legacy cares for his family in either circumstance.

The welfare of the family is the main concern and the main work of the organization. A member of Legacy is allocated to each family as an advisor. The organization tries to ease the widow over the distressing period which follows her husband's death. It also gives financial help if it is needed.

Special committees set up by Legacy give competent advice and take positive action in such matters as education, welfare, and pensions. Legacy helps with medical, dental, and legal aid. It also gives advice readily on other matters. Donations from a generous Australian public enable Legacy to carry out this work.

LEGAL SYSTEM OF AUSTRALIA

LEGAL SYSTEM OF AUSTRALIA is based to a large extent on the legal system of Britain. Many of the laws operating in Australia derive from British laws. But Australia's legal system differs in important ways from that of Britain. Australia is a federation of six states. In a strict sense, it has several legal systems, rather than one. Each state has its own systems of state courts and state laws that apply only within the state. In addition, Australia has a system of federal courts and federal laws that apply in all parts of the country.

When the Australian colonies were formed, the existing British laws were applied in them as far as possible. Afterwards, Britain allowed the colonies to make laws on matters affecting themselves. Rules resulting from the decisions of Australian courts were added to the body of law operating in the colonies. In 1901, the six colonies federated as states of the Commonwealth of Australia. The states kept their separate parliaments, courts, and laws. A federal parliament was established with power to make laws affecting the whole of the Commonwealth of Australia, and federal courts were set up, including a High Court.

Basis of Law

The legal system of Australia, like the legal system of Britain, is based on a political and philosophical ideal called the *rule of law.* Under the rule of law, a person's relations with other people and the state are governed by law, and not by force or arbitrary power. Only the representatives of the people in parliament can make laws. The people can vote a government out of office if it makes laws that unduly restrict their freedom. Officers who administer the law are responsible to the people through parliament.

Another principle of the rule of law is that no person should be deprived of his life, liberty, or property, except by *due process of law*—that is, by fair trial in open court presided over by impartial judges. All people are equal in law. They are free to think, believe, or do what they like, except where the law limits such freedom in order to protect the rights of other people or of society as a whole. The principles embodied in the rule of law may not always be fully achieved in practice. But the people who make and enforce laws know of these principles and try to observe them.

Australia has two sources of law: case law and legislation. Case law is also called *common law.* It consists of rules resulting from the decisions of the law courts. When a case comes before the courts, the judges generally apply the law as laid down or interpreted by earlier courts that decided similar cases. Case law includes the rules of law that the Australian colonies adopted from Britain at the time the colonies were formed, as well as the decisions of the Australian courts since that time. Lower courts follow the decisions of the higher courts, and the Australian courts often follow the decisions of higher courts in Britain. See COMMON LAW in the main volumes.

Today, the law tends to be based less on case law than on *statutes* (acts of parliament). A statute can alter rules of case law as well as previous statute law. But the decisions of the courts cannot override statutes, except where a court decides that parliament has no constitutional power to pass a particular statute. The courts can interpret statutes when their meaning is not clear. See STATUTE in the main volumes.

The British parliament and the Australian federal and state parliaments have power to make statutes affecting Australia. The British parliament does not exercise this power, except on the request of the federal or state governments. British statutes govern some important matters such as the federal constitution and appeals to the Privy Council in London. The federal parliament can make laws that override any British statute applying in Australia, except the Commonwealth of Australia Constitution Act and the constitution itself. But state parliaments cannot make laws that conflict with a British statute intended to apply in their states.

The federal and state parliaments make most of Australia's laws. The federal parliament has power to pass laws only on topics listed in the federal constitution, such as defence, external affairs, interstate trade and commerce, industrial disputes extending beyond one state, bankruptcy, taxation, and marriage and divorce. Only the federal government can make laws on some of these topics. Both the federal and state parliaments have power to make laws on others. But, if a state law conflicts with a federal law, the federal law prevails. Only the states can make laws on all other topics. Sometimes states co-operate with each other and with the federal government to make uniform laws on particular topics.

The federal and state parliaments can pass statutes giving power to the governor-general, the governor of a state, a minister, or some other authority to make rules of law. Such rules, called *subordinate* or *delegated* legislation, are an important part of the law. But subordinate legislation that exceeds the limits of power set down in the statute under which it is made is invalid.

State Courts

State courts are of three main kinds: inferior courts, intermediate courts, and supreme courts. They hear criminal and civil cases. Intermediate and supreme courts can also try cases in equity. In *criminal* cases, the government charges someone with committing an act that violates the law. In *civil* cases, one person accuses another of violating his personal rights—by not paying a debt, for example. *Equity* consists of a set of rules originally based on a common sense of justice. They have the force of law, but are separate from the ordinary rules of law. Equity actions include those concerning trusts and mortgages. Equity is administered separately only in New South Wales. See LAW and EQUITY in the main volumes.

Inferior Courts are Australia's lowest courts. They include magistrates' courts, coroners' courts, and children's courts. A magistrate or justice of the

peace presides over magistrates' courts and children's courts as well as most coroners' courts. These courts make final decisions on minor disputes. Proceedings in them are usually quick and informal. In many cases, the parties cannot appeal to a higher court against decisions.

Magistrates' Courts try minor criminal and civil cases and perform various other functions. They sit in various country and metropolitan areas and have *jurisdiction* (legal authority) only in their own areas. In civil cases, they have power to deal only with disputes involving values or sums of money below a specified amount. The names, powers, and procedures of these courts vary from state to state.

When hearing criminal cases, these courts are known as *police courts, magistrates' courts, courts of petty sessions,* or *courts of summary jurisdiction.* In civil cases, they are known by various names: *small debts courts* in New South Wales, *magistrates' courts* in Queensland, *local courts* in South Australia and Western Australia, *courts of requests* in Tasmania, and *courts of petty sessions* in Victoria.

Most crimes are classified as either *indictable offences* (serious crimes for which trial by a judge and jury is required) or *summary offences* (less serious crimes). Magistrates' courts in the various states have power to try summary offences. They can also try certain indictable offences, sometimes only if the accused person consents. Summary trial is generally quicker than trial by judge and jury and the penalties are lower.

Magistrates' courts also conduct *preliminary hearings* of indictable offences. The purpose of these hearings is to review the case against the accused as soon as possible to see whether the evidence against him is sufficient to have him committed for trial in a higher court. A magistrates' court can discharge him if the evidence against him is insufficient.

Children's Courts try offences charged against people under a certain age. But they do not try cases involving serious crimes, such as murder. They have power to commit young people charged with serious crimes for trial in a higher court. Children's courts also hear charges of certain offences committed against young people, and hold proceedings relating to the welfare of young people. Their main purpose is to protect young people from the publicity and other features of trial in the ordinary courts and to make orders providing for their welfare.

Coroners' Courts hold *inquests* (inquiries) into unexplained deaths, violent or unnatural deaths, or deaths that have taken place in unusual or suspicious circumstances. A coroner's court is primarily a fact-finding proceeding. But a person may be charged with an offence on the basis of the facts discovered at an inquest. See CORONER in the main volumes.

Coroners' courts also have power to hold inquests into the causes and origins of fires that have destroyed or damaged property. In Queensland, they may hold inquiries in regard to missing persons. In all the states except New South Wales and South Australia, they can commit a person for trial.

Intermediate Courts rank between magistrates' courts and the supreme court in some states. They have legal authority in particular areas. They relieve the supreme courts of much routine business and enable actions to be dealt with quickly in their areas. Proceedings in intermediate courts are more formal than in magistrates' courts. Each intermediate court is presided over by one judge.

Intermediate courts hearing criminal cases are known as *courts of quarter session* in New South Wales, *district courts* in Queensland, *courts of general sessions* in Victoria, and *courts of session* in Western Australia, whenever a judge presides over them. They try indictable offences with the help of a jury of 12. But, as a rule, a supreme court judge and a jury try the most serious offences either in the state capital or on circuit. Intermediate courts also hear appeals from the lower courts. A person can appeal against a conviction or sentence, but the prosecution cannot appeal against an acquittal.

Intermediate courts hearing civil cases are known as *district courts* in New South Wales and Queensland, *local courts* in some circumstances in South Australia, and *county courts* in Victoria. These courts try cases in which the amount of money or the value of the property involved does not exceed a certain limit. The limit is higher in these courts than it is in lower courts. The general limit varies from $A 2,000 in Victoria to $A 6,000 in New South Wales. With the consent of the parties involved, intermediate courts can try cases in which the values exceed these limits. In addition to trying common law cases, they try some equity cases. They may have special authority under a statute to deal with particular topics, such as deserted wives. They may be given authority to hear appeals from lower courts. Actions can be transferred from an intermediate court to a supreme court.

Supreme Courts are the highest state courts. Each state has a supreme court consisting of a chief justice and a number of other justices, called *puisne* judges. Some of these puisne judges have special responsibilities. For example, a puisne judge may also be the chief judge in equity or a judge in divorce (see PUISNE in the main volumes).

Supreme courts can hear cases *at first instance*—that is, cases coming before the courts for the first time. They also hear appeals from the decisions of lower courts. Only serious criminal cases and major civil disputes come before the supreme courts at first instance. The others come before the inferior courts, from which they can go to the supreme court on appeal.

Supreme courts also hear cases in special fields usually outside the authority of inferior courts. These cases include those concerning the estates of deceased persons, shipping, bankruptcy, and marriage and divorce.

Special Courts and Tribunals help to administer particular functions of government. The federal and state governments set up these courts and tribunals and give them power to decide certain kinds of disputes and to make decisions concerning the rights of individuals. For example, a state may set up an industrial commission or court to settle

industrial disputes and regulate conditions in industry. The composition, powers, and procedures of these courts and tribunals depend on the statutes creating them. Judges, magistrates, practising lawyers, or laymen may serve on them. The law courts can review the findings of special courts and tribunals if their proceedings are irregular.

Federal Courts

The High Court can hear cases at first instance relating to certain topics listed in the federal constitution. Only the High Court has authority to hear cases relating to some of these matters. But both the High Court and the state courts have authority to hear cases involving others. The High Court can also hear appeals from decisions of state supreme courts, other federal courts, or other courts exercising federal authority. It can hear appeals from its own decisions in cases at first instance.

The High Court can sit in all the state capitals and in the federal capital. In practice, it sits mainly in Melbourne and Sydney. Its principal seat is in Melbourne, but eventually it may be in Canberra.

Other Federal Courts are set up from time to time by the federal parliament. These courts include the Federal Court of Bankruptcy and the Commonwealth Industrial Court. The federal government can also give federal authority to state courts and can establish courts for the Australian territories.

Federal Tribunals investigate and make decisions on a wide variety of subjects. They include such bodies as the Coal Industry Tribunal, Commonwealth Conciliation and Arbitration Commission, Literature Censorship Board, Repatriation Commission, Superannuation Board, Tariff Board, Taxation Boards of Review, and War Pensions Entitlement Tribunal. The composition, powers, and procedures of these bodies vary greatly.

The Privy Council

The Privy Council exercises the special privilege of the British sovereign to hear appeals from courts in many countries of the Commonwealth of Nations (see PRIVY COUNCIL in the main volumes). The *Judicial Committee,* consisting primarily of high-ranking judges, acts for the Privy Council in such appeals. The Judicial Committee sits in Downing Street, in London. At least three members must be present at all times during a hearing.

Appeals can be taken directly to the Judicial Committee from decisions of supreme courts exercising state authority if the amount or value at stake exceeds a specified amount, or if the supreme court grants permission. The Judicial Committee can also grant permission to appeal if it considers that the case involves an important question of law or a matter of great public importance. Appeals against the decisions of a state court exercising federal authority can be taken only to the High Court and not directly to the Judicial Committee. Appeals can be taken from the High Court to the Judicial Committee only with the committee's special permission. But the permission of the High Court is required in cases involving the limits of constitutional power of the federal or state governments.

Sentences and Orders

Criminal Penalties are imposed by the courts on people convicted of criminal offences. As a rule, the law specifies a maximum penalty for each offence, but a judge or magistrate imposing a sentence can vary the penalty according to the circumstances of the crime. He may treat a *first offender* (a person who has not been convicted before) with leniency, or impose a heavy penalty on a person with a bad criminal record.

The most frequently imposed penalties are fines and imprisonment. Convicted offenders are sentenced to imprisonment only for the more serious crimes. The courts can suspend a sentence on condition that the convicted person fulfils certain conditions, such as being of good behaviour for a stated period. Each state has its own prison system. State governments can grant pardons, remit sentences, or release prisoners on parole before they have served a full term. New South Wales, Queensland, and Tasmania do not have the death penalty.

Civil Orders are made by law courts in giving judgments in civil actions. Examples of such orders are orders compelling the person against whom judgment is given to restore property, such as land or buildings, to the person entitled to it, or to pay a specified sum of money to the other party as debt or damages. The law courts can force the unsuccessful party to comply with such orders.

Other civil orders may command someone to fulfil a contract or perform a public duty, restrain someone from doing certain acts, or declare that certain rights and liabilities exist or do not exist. Courts with authority to give judgment in special types of cases have their own forms of orders, such as *decrees* in divorce cases and *grants of probate* and *letters of administration* in cases concerning the estates of deceased persons. Superior courts can enforce their orders by committing a person for contempt if he refuses to obey them.

Judges, Magistrates, Juries, and Lawyers

Judges preside over state and federal courts. State and federal laws make a number of provisions to ensure that judges are sufficiently independent to decide cases free of pressure from the government and without bias for or against either party. Judges are appointed "during good behaviour"—that is, they hold their posts for life or until they reach retiring age, and can be dismissed only for misbehaviour or inability to perform their duties. Their salaries cannot be reduced at any time during their term of office.

Federal Judges preside over the High Court and other federal courts. The governor-general appoints federal judges in the sovereign's name. He acts on the advice of the federal cabinet, but there is a strong tradition against appointments made on political grounds. A man who has been active in politics will be appointed only if his legal reputation is high enough to make him acceptable in spite of his political involvement.

State Judges sit in state supreme courts, intermediate courts, and special courts, such as state industrial courts. In each state, the governor appoints state judges on the advice of the executive council. He appoints only practising lawyers.

The states have similar rules concerning the tenure, payment, and dismissal of judges. In all the states, except Victoria, the retiring age for supreme court judges is 70. In Victoria, the age is 72.

Justices of the Peace and Magistrates preside over magistrates' courts. Justices of the peace are laymen appointed to perform minor judicial work. The state governor appoints justices of the peace "during pleasure only"—that is, they can be dismissed at any time. They do not receive a salary and do not need to have any particular qualifications.

Stipendiary magistrates, who are professionally trained and receive a salary, are gradually replacing justices of the peace, especially in more densely populated areas. The state governor usually appoints magistrates from among people working in the public service. They can hear both civil and criminal cases. Paid magistrates preside over coroners' courts, children's courts, fair rent courts, licensing courts, traffic courts, and the Commonwealth Court of Petty Sessions.

In practice, magistrates have a fairly large degree of independence. In Western Australia, they have the same security of tenure as supreme court judges. In South Australia, they may be dismissed or demoted only on the advice of the chief justice.

Juries give verdicts in both criminal and civil actions. A criminal jury consists of 12 members. A civil jury varies in size from state to state.

In all the states, a court trying an indictable offence consists of a judge sitting with a jury, except when the trial is a summary trial in a magistrates' court. The judge presides at the trial and rules on whether evidence is admissible or not. He also directs the jury on points of law. The jury evaluates the evidence and tries to discover the facts. It then decides whether, on the facts, the accused person is guilty or not guilty. When a jury decides that a person is guilty, the judge imposes the sentence.

In most states, members of a criminal jury must be unanimous in their verdict. If they cannot agree in a certain period of time, the jury is discharged and a new trial is held. But in South Australia and Tasmania, a court may sometimes accept a majority verdict if a jury has failed to reach a unanimous verdict in a specified time.

Lawyers. The legal profession in Australia is organized and regulated on a state basis. Federal courts do not have their own organization of lawyers. State lawyers may practise in federal courts if they enter their names on the practitioners' roll of the High Court.

In New South Wales and Queensland, as in England, lawyers are divided into two classes: barristers and solicitors. But they can transfer from one class to another. In the other states, no formal division exists. But, in practice, some lawyers do mainly the work of barristers while others specialize in the work of solicitors. In Victoria, a practitioner wishing to practise only as a barrister signs the *roll of counsel.* In this way, he undertakes not to practise in any way as a solicitor.

Solicitors mainly advise and assist clients in conducting their private and business affairs. They prepare deeds for transferring ownership of property, draft wills, and administer the estates of deceased persons. Solicitors may also conduct cases in court, but usually they brief barristers to take cases in the higher courts.

Barristers, also called *counsel,* work mainly as advocates in court. They also give advice on legal problems, draft pleadings for court cases, and prepare the more complex legal documents. It is considered improper for a barrister to be instructed directly by a client. He may act only on the instructions of a solicitor. A barrister of eminence can apply to *take silk*—that is, to be appointed as Queen's Counsel (Q.C.). The status of Q.C. entitles a barrister to certain special privileges. A Q.C. wears a distinctive court dress.

The Attorney-General is an elected member of parliament and a minister of the Crown. As a rule, the governor-general or state governor, on the advice of the prime minister or state premier, appoints a professional lawyer as attorney-general, but he may appoint a layman. The attorney-general is legal adviser to the government. He shares with Crown prosecutors the power to prosecute for indictable offences. He seldom prosecutes, but his consent is needed in prosecutions for certain offences.

Prisons

When the first British settlers arrived in Australia in 1788, the total white population of the country consisted of convicts and their guards, together with a small number of free settlers. Australia could almost have been seen as one vast prison. Guards often used leg-irons, prolonged solitary confinement, and public floggings. The development of a *ticket-of-leave* system, a forerunner to parole, lessened these barbaric punishments to some extent. At the same time, the authorities established separate centres for the punishment of convicts. These centres became the first real prisons in an increasingly free country.

As convict settlements declined in importance, prison building in Australia boomed. These changes took place during the gold rush era of the 1840s and 1850s. Many of the prisons built then are still in use today. They include Long Bay in Sydney and Pentridge in Melbourne, the two largest prisons in the country. Each of these is now more than a hundred years old. Every capital city has one major prison that is well known in its local community. But, actually, in addition to police lock-ups, the number of separate prisons in Australia totals more than 50. Seven independent authorities administer these prisons, which house as many as 10,000 people at any one time. In the 1970s, the numbers of prisoners in most administrations tended to decline. Prison reformers hoped to eliminate these fortress-like institutions, with their echoes of the convict past, by the year 2000.

LEGAL SYSTEM OF INDONESIA

LEGAL SYSTEM OF INDONESIA, like the legal systems of other Asian countries, is of a mixed character. One part of it consists of the *codified law* (law in the form of statutes) introduced by the Dutch in the 1800s when the islands of Indonesia formed a Dutch colony. During colonial times, the codified law applied to Europeans in the colony and to limited sections of the non-European population.

The other part of Indonesian law consists of the *adat* (customary) law of the Indonesians themselves. During colonial times, most Indonesians remained subject to this customary law. Indonesian law today has a *dualistic* (double) character because it consists partly of western code law and partly of local adat law.

Basis of Law. In 1959, President Sukarno reintroduced the Constitution of 1945, which gave wide powers to the president. After 1959, he used these constitutional powers to make laws. He limited the powers of parliament, the People's Consultative Assembly (DPR). The role of the DPR became one of merely consulting with the president and other bodies. See GOVERNMENT OF INDONESIA in this volume.

Most of the laws made since Indonesia's independence, in 1945, apply to all inhabitants of the country. The Dutch introduced a criminal code in 1918, basing it on Dutch law. The penalties for crimes are the same for everybody, irrespective of whether the person accused is an Indonesian, a Chinese, or a European.

But, in civil law cases, some people are governed by code law and some by adat law. Civil law regulates important everyday transactions between people. It includes contract law, property law, and the law of torts (see TORT in the main volumes). The division between the people affected by these two types of law is a survival from colonial times. Indonesian civil code law governs Europeans and non-Indonesian Asians, such as Japanese and Thais, who are subject to codified laws in their own countries. It also applies to the 3 million Chinese born in Indonesia. Indonesians themselves have a choice. They can accept the civil code law by entering their names on a register, or they can continue to be governed by adat law. The civil code law gives them some advantages, but it has not proved popular.

The civil code establishes the law in a manner similar to the French *Code Civil* and other civil law codes (see CIVIL LAW in the main volumes). It has the advantages of clarity and uniformity. But it has no roots in the legal customs of the Indonesians.

Adat law attempts to put the legal customs of the country in written form. These legal customs vary considerably from area to area. Scholars distinguish 19 customary law areas. The differences between the laws applied in these areas are, in many cases, only minor, and legal authorities plan to unify them.

Indonesian legal authorities recognize that reform of their complicated legal system represents an extremely big problem. But, in the field of land law, the passing of the Agrarian Basic Act in 1960 was a great step forward. Under this act, following adat law, the right to occupy and use land has become the most comprehensive right over land recognized by the law. This right is reserved for Indonesian citizens. On the other hand, the new act takes over from code law the idea of registration of land rights.

Marriage law has for a long time been based on the law of the religion of the couple. The law for Muslims is marked by its informality. The law for Christian marriages is regulated by special statutes.

Courts are organized simply. Legal procedure is also fairly straightforward. Under the Dutch system, used before 1942, one type of court dealt with Europeans and others living under the code system. Another, more simple type of court, with a much less formal procedure, dealt with most Indonesians —who lived under adat law. When the Japanese conquered Indonesia, in 1942, they kept only the Indonesian system of courts. Indonesia's court system is still organized in this way.

The lowest court is the *Pengadilan Negeri* (state court). Most criminal and civil cases go first before this court. If people wish to appeal against the decisions of this court, the appeal goes to one of the regional *Pengadilan Tinggi* (superior courts). Once the superior court has given its decision, people can appeal, in many cases, to the country's highest court, the *Mahkamah Agung* (high court). To succeed in an appeal, lawyers must show that the lower courts failed to apply a rule of law properly.

Apart from these courts, there are a number of special courts. Religious courts hear cases concerning marriage, divorce, and religious trust matters of Muslims. Village courts have limited functions. Military courts have wide powers.

Judges and Lawyers are all trained in law, and must pass university examinations. Only one judge sits in a state court. Three judges must sit in a superior court. At least three judges must hear each case in the high court. Indonesian courts have no juries.

The highest judge in Indonesia is the president of the high court. He has the rank of a cabinet minister and is a lawyer of high distinction. The government appoints all judges.

The distinction between *procureur* and *advocate* is similar to that between *solicitor* and *barrister* in Australia (see LEGAL SYSTEM OF AUSTRALIA [Lawyers] in this volume). Indonesian lawyers are both procureurs and advocates and can act for clients both in and out of court. Indonesian lawyers are organized in two associations—*Perhimpunan ahli hukum Indonesia* (Association of Indonesian Lawyers) and *Perhimpunan sarjana-hukum Indonesia* (Association of Indonesian Law Graduates). Hundreds of lawyers belong to the *Jaksa* (Public Prosecutor) service. This service prepares the material for the prosecution in criminal cases.

Police in Indonesia are now the fourth force in Indonesia's armed services. The commanding officer of the armed services is at the head of the country's police force. The government decided on this united command to avoid conflicts between the police and the armed services.

LEGAL SYSTEM OF MALAYSIA, like that of most Commonwealth countries, is based on the legal system of Britain. But Malaysia is a country of many peoples, and its legal system incorporates much of the religious and customary law of some of these peoples, particularly the Malays and the local peoples of Sabah and Sarawak.

Basis of Law

Almost all the Malays are Muslims. The *sharia,* the law of Islam, governs not only religious observances but also, to a large extent, family matters. Customary law plays a large part in the lives of the peoples of Sabah and Sarawak. And customary law has some part in settling family disputes among the Chinese and Indians in Malaysia.

But most aspects of the lives of all the people of Malaysia are controlled by the constitution and by *statutory* law. Statutory law consists of *statutes* (laws) enacted by the parliament of Malaysia, by the legislatures of the separate states, by municipalities, and by the British government when it ruled the area. Malaysia does not have statutory laws relevant to all situations. In some cases, Malaysia follows English common law (see COMMON LAW in the main volumes). In other cases, it applies statutes that have been enacted in Britain on comparable matters.

Courts

Malaysia's court system is patterned on a pyramid. At the base of the pyramid are the courts of the *penghulus* (local chiefs) and the magistrates. Magistrates hold the rank of either first-class or second-class magistrates. Higher up the pyramid are sessions courts, two high courts, and the Federal Court. The Judicial Committee of the Privy Council, meeting in London, hears appeals from the Federal Court.

Malaysia also has two other groups of courts: sharia courts for Muslims and native courts for the peoples of Sabah and Sarawak. Secular courts hear appeals from the religious courts. The ruler of the state makes the final decision. A Native Court of Appeal, presided over by a high court judge, hears appeals from the native courts. Both the religious and native courts interact closely with the federal system of courts, but they are not integral parts of the federal court structure.

Penghulus' courts hear minor criminal and *civil* (non-criminal) cases. A penghulu, to hold a court, must be authorized by *kuasa,* a document issued by the ruler of the state. Any person charged before a penghulu may choose to be tried by a magistrate instead. A first-class magistrate hears appeals from a penghulu's court.

Magistrates' courts, sessions courts, and high courts all have *jurisdiction* (legal authority) in criminal and civil cases. The jurisdiction of the high courts is unlimited. Magistrates' and sessions courts do not have jurisdiction over the most serious cases. They can impose only limited penalties in criminal cases, and they can make judgments for only limited amounts in civil cases. First-class magistrates' and sessions courts both conduct inquiries into *indictable offences* (cases involving the more serious types of crimes). Appeals from magistrates' and sessions courts, in both criminal and civil cases, go to the high courts.

Malaysia has two high courts, with equal jurisdiction and status, one for the states of Malaya and the other for the states of Borneo (Sabah and Sarawak). Each high court consists of a chief justice and not fewer than four other judges. The high court in Malaya may have up to 12 judges. The Borneo high court may have up to eight judges.

The Federal Court consists of a lord president together with the chief justices of the high courts and two other judges. It hears appeals from the high courts, decides disputes between two or more states and between states and the federal government, determines constitutional issues, and gives advisory opinions to the Yang di-Pertuan Agong.

A Judicial and Legal Service Commission appoints, promotes, and exercises disciplinary control over members of the legal profession. But the constitution provides that the judges must be independent. Judges of the Federal Court and the high courts hold office until the age of 65. They may be removed only in exceptional cases, and their salaries and other conditions of office may not be varied to their disadvantage.

Sentences and Orders

Offences. Minor offences include a great variety of actions. For example, letting a ferocious dog run loose in the street is a minor offence. Most such offences are punished by small fines, but magistrates may impose short terms of imprisonment for some of them.

Both penghulus and magistrates have jurisdiction over minor offences. A penghulu may not inflict punishment greater than a fine of $M 25. A second-class magistrate may not inflict punishment exceeding three months' imprisonment, a fine of $M 250, or both. A first-class magistrate may impose punishments involving one year's imprisonment, a fine of $M 2,000, or both.

Generally, sessions courts may try offences punishable by not more than seven years' imprisonment, or by a fine. The high courts may try any criminal case and inflict whatever punishment is authorized by law, including the death penalty.

The penal code follows closely that of India, which is based on English criminal law. The constitution permits detention without trial as a way of combating subversion. It also permits corporal punishment.

First Offenders may be placed on *probation* instead of being imprisoned if they are convicted of offences for which there is no fixed punishment. The offender is placed under the supervision of a probation officer for a specified period of time. Probation is not limited to first offenders, but they benefit most from the system.

Young Offenders. People under 14 years of age are regarded legally as children. Those under 16 are regarded as young people. All courts are directed to

have regard to the welfare of children and young people who appear before them as offenders. In certain cases, the courts order children and young people to be removed from undesirable surroundings and to be placed where they will be properly looked after and where they can be trained to become useful citizens.

Juvenile courts have jurisdiction over all cases involving children and young people, except where they have committed offences that must be tried by the high courts. A child may not be imprisoned for any offence. The courts may not send a child under 10 to an approved school or remand home if a person can be found to care for him. The juvenile courts may send a young person to a remand home, a place of detention, or an approved school or home, unless they consider that he is beyond reform, in which case he goes to prison.

Penalties. A person convicted of such crimes as murder or waging war against the state may be sentenced to death. But, in fact, the courts rarely impose the death penalty. Most other criminal offenders undergo imprisonment for various periods. Fines are the usual punishment for most minor offences.

Civil Law. Civil cases in Malaysia go through the same procedure as in all the countries that follow English law. A penghulu hears cases in which the amount in dispute does not exceed $M 50. An appeal from his decision may be heard before a first-class magistrate. Second-class magistrates have jurisdiction up to $M 250 and first-class magistrates up to $M 1,000. The high courts hear appeals from magistrates' decisions. The civil jurisdiction of sessions courts is limited to $M 2,000. The high courts hear appeals against their decisions. The civil jurisdiction of the high courts is unlimited. Appeals from the high courts may be made to the Federal Court, and from the Federal Court to the Judicial Committee of the Privy Council, in London.

Religious Law. The sharia courts have both criminal and civil jurisdiction over Muslims. A Muslim may be punished in the sharia courts by fine or imprisonment for many religious offences, such as selling, buying, or drinking intoxicating liquor in a public place. Sharia courts hear civil cases concerning the validity of marriages and divorces, and maintenance, alimony, and property settlements on death or divorce. A judge of the sharia courts is a *kathi,* a religious figure. State law, not federal law, governs the sharia courts. They derive their authority ultimately from the Koran, through the ruler of each state, who is head of the Muslim religion in his state. In Malacca and Penang, the Yang di-Pertuan Agong is the religious head.

Judges and Lawyers

The Lord President is the highest judicial officer of the Federal Court. He is appointed by the Yang-di-Pertuan Agong, on the advice of the prime minister. In addition to presiding over the Federal Court, he is consulted before judges are appointed. He may recommend to the Yang di-Pertuan Agong the transfer of high court judges. To be eligible, he must be a citizen and must have had 10 years' experience as an advocate in the high courts or as a member of the judicial and legal service. He holds office until the age of 65.

Judges. Two judges, in addition to the lord president, are members of the Federal Court. The chief justices of the high courts are also members of the Federal Court. These judges all have less administrative power than the lord president. But their method of appointment, judicial functions and powers, qualifications, and terms of office are the same as for the lord president. The chief justices act as high court judges when not sitting in the Federal Court. They must be consulted in connexion with the appointment of federal judges and of high court judges.

Presidents of Sessions Courts are appointed by the Judicial and Legal Service Commission. To be eligible for appointment, candidates must have been qualified as lawyers for three years. They do not have the same security as judges. But they must receive adequate notice of dismissal, and they have the right to be heard before the dismissal becomes effective.

Magistrates are appointed by the Judicial and Legal Service Commission. Their terms of service are similar to those of presidents of sessions courts. They have the same protection against arbitrary dismissal.

Lawyers. Before 1957, no institution for the training of lawyers existed in Malaysia. Students could qualify by going through articles and examinations in Malaya, but most of them qualified in Britain.

In 1957, a law faculty was established at the University of Malaya in Singapore. Few people now go through local articles and examinations. Law graduates from Malaysian or British universities and Malaysians who have qualified as barristers in Britain may be admitted as lawyers after a period of *reading in chambers* in Malaysia—that is, working in the offices of a practising lawyer there—and after passing an examination. The legal profession in Malaysia is unified. Lawyers may perform the functions of both advocates and solicitors.

The Bar Council. Malaysia has no law societies. A Bar Council, which is a federal body of the local bar committees in the states, regulates professional ethics and generally represents lawyers, whether they are acting as advocates or as solicitors.

Police

The police force is a federal organization under the jurisdiction of the Police Force Commission. It is a highly disciplined, well-trained, and efficient force of more than 20,000 men, deployed throughout Malaysia. The British encouraged the Malays particularly to enter police service. Malays continue to make up the major part of the force.

See LAW in the main volumes. See also GOVERNMENT OF MALAYSIA in this volume; PRIVY COUNCIL and RELIGION IN MALAYSIA AND SINGAPORE in the other Australasian volume.

LEGAL SYSTEM OF NEW ZEALAND is based largely on the legal system of Britain. New Zealanders have adapted many features of the British system to New Zealand conditions by introducing law reforms and by implementing new ideas in the administration of justice.

New Zealanders have pioneered in developing several new ideas in law. They have been particularly successful in laws dealing with the adoption of children and divorce proceedings. Law-makers in other countries have included some of these ideas in their legal systems.

New Zealand's system of courts is based on the British system. But New Zealanders have simplified the number and structure of their courts. They have also set up special courts, such as the Maori Land Court.

The legal system of New Zealand is linked with Britain's system in three basic ways. English common law is one of the chief sources of law in New Zealand. A few acts passed by the British parliament, most of them before New Zealand became independent, have the force of law in the country. Appeals against decisions by New Zealand courts can be made to the Privy Council in Britain (see COMMON LAW and STATUTE in the main volumes; PRIVY COUNCIL in the other Australasian volume).

Basis of Law

The law quoted and applied in New Zealand's courts comes from six sources. In order of importance, these sources are: acts of New Zealand's parliament, some acts of Britain's parliament, inferior legislation, previous decisions made by New Zealand's courts, previous decisions made by the courts of other Commonwealth countries, and New Zealand custom.

Acts passed by the New Zealand parliament are the country's most important form of law. Constitutionally, parliament can enact laws on any subject it chooses. Certain acts passed by Britain's parliament before 1947, such as the Fugitive Offenders Act of 1881, still remain law for New Zealand.

In New Zealand's courts, *inferior legislation* includes rules, regulations, and by-laws made by government officials, public agencies, or local authorities. The courts regard these rules as being second in importance only to acts of parliament.

Previous court decisions are an important source of law in any country. In New Zealand, judges and lawyers can draw on decisions made in the courts of Commonwealth countries, as well as decisions made in New Zealand's courts.

A New Zealand court occasionally uses New Zealand custom as a basis for its decision. For example, a New Zealand court once had to decide, in a case involving taxes on the estate of a Maori, whether holding a *tangi* (funeral feast) was a reasonable expense in a bill for a Maori funeral. After considering Maori custom and tradition, the court ruled that the expense was justified.

Courts

The Magistrates' Courts are New Zealand's lowest courts for general cases. They handle a huge volume of work—about 100 times as many criminal cases and 50 times as many civil cases as the higher courts. Their chief purpose is to provide justice that is swift, simple, and inexpensive.

These courts hear all criminal cases except ones involving serious crimes, such as rape, murder, and treason; ones in which the penalty could be a jail sentence of more than three years, or a fine of more than $NZ 400; and ones in which the accused person chooses to have a jury trial. The magistrates' courts also hear minor civil cases, such as small claims for damages.

Every town in New Zealand has a magistrates' court. If no magistrate lives in the town, one from a nearby city regularly visits to preside over court sessions. A justice of the peace may preside in the magistrates' court for some minor cases (see JUSTICE OF THE PEACE in the main volumes).

The Supreme Court is New Zealand's second highest court. It is the only one in New Zealand in which the accused person may have his case heard by a jury. He may also choose to have a judge hear a civil case without a jury, or to have a group of judges hear it. The Supreme Court hears four types of cases: *indictable offences* (cases involving the more serious types of crime); legal actions to control lower courts, such as magistrates' courts; appeals; and important civil cases, such as divorce cases and large claims for damages. All indictable offences and some civil cases are heard before a judge and jury.

The Supreme Court sits in the following cities and towns: Auckland, Hamilton, New Plymouth, Gisborne, Napier, Wanganui, Palmerston North, Wellington, Nelson, Blenheim, Christchurch, Timaru, Dunedin, and Invercargill.

The Court of Appeal is New Zealand's highest court. It has three judges, one of them appointed as *president* of the court. New Zealand's chief justice, by virtue of his position, is also a judge of the Court of Appeal. This court, which sits in Wellington, hears all appeals against decisions by judges in criminal and civil cases in New Zealand's courts. The Court of Appeal normally hears only appeal cases. But a judge in the Supreme Court may order that a point of law arising in that court be transferred to the Court of Appeal for legal argument.

Special Courts in New Zealand deal with small numbers of special problems. For example, a *coroner's court* holds an inquest on a person's death in certain circumstances, to establish his identity and when, where, and how he died. The *Maori Land Court* hears claims concerning land that is owned by Maoris or by the estates of Maoris. The *Land Valuation Court* hears appeals from individuals and companies who dispute the valuations of their land made by New Zealand's Government Valuation Department.

Judges and Lawyers

The Chief Justice of New Zealand is appointed by the governor-general and has four main functions. First, as head of all New Zealand's judges, he has organizing responsibilities for the judiciary as a

whole. Second, he is a member of the Court of Appeal. Third, he is a judge of the Supreme Court. Fourth, he becomes the *administrator of New Zealand* (the acting representative of Britain's monarch) when the governor-general is absent from New Zealand. When the chief justice is acting as administrator, he cannot preside over a court case in which the Crown is a party, because, as administrator, he represents the Crown.

Judges below the chief justice include the 3 permanent judges of the Court of Appeal, and the 12 judges who sit in the Supreme Court. They and the chief justice are appointed by the governor-general to hold office until retirement age, set at 72. They may be removed during their terms of office only by the monarch at the request of New Zealand's parliament. Their salaries cannot be reduced during their terms of office. With these safeguards, New Zealand's judges are beyond the reach of political pressures. The governor-general and his advisers choose as judges barristers who appear to combine high academic ability with a shrewd sense of humanity.

Magistrates are appointed by the governor-general from lawyers who have been qualified New Zealand barristers for at least seven years. New Zealand has 35 magistrates. Magistrates retire at the age of 68 and may be removed from office only by the governor-general, and only for inability or misbehaviour. In choosing barristers who will make good magistrates, the governor-general's advisers seek men who have a sound and shrewd understanding of human nature and who also think quickly. In one day, a magistrate may be called upon to sentence a hundred minor offenders, decide the responsibility for several broken marriages, and untangle a complex dispute about a building site. These duties contrast with those of a judge, who, in dealing with fewer cases, approaches them in a more exhaustive and legally academic manner.

Justices of the Peace (J.P.s) are selected by the governor-general to assist as laymen in the administration of justice. Their chief functions are to hear some minor cases in the magistrates' courts in country districts, to preside at preliminary hearings of cases involving indictable offences, and to hear applications for bail (see BAIL in the main volumes). J.P.s also sign many documents that require official recognition. They are not paid for their services.

Coroners. New Zealand has 98 coroners, all appointed by the governor-general. Almost every town has its own resident coroner, who holds this office in addition to his own professional occupation. Most coroners are lawyers or doctors. Magistrates are also coroners in their own right.

Lawyers. New Zealand law students must complete a five-year university course consisting of three arts subjects and several law subjects. Passes in 14 law subjects qualify students as solicitors. Passes in two additional law subjects qualify students as barristers. New Zealand lawyers may practise in the dual role of both barrister and solicitor. A solicitor who is not also a barrister may not act as counsel in Supreme Court cases.

Law Societies. All lawyers who practise in New Zealand must be members of the New Zealand Law Society. It is collectively responsible for the professional conduct of the country's lawyers. The society issues detailed rules of practice to its members, and it can discipline members who break these rules.

Prisons

New Zealand's prisons are maintained and controlled by the government. The minister of justice (the political head of the Justice Department) and the secretary for justice (the permanent head of the Justice Department) are responsible for the administration of prisons.

New Zealand has 14 prisons. The chief prisons are Auckland Prison (in the suburb of Mount Eden), Wellington Prison, and Christchurch Prison.

Probation

New Zealand has an extensive probation system. Specially trained probation officers work with the police, magistrates, and justices of the peace in New Zealand's cities and some of its towns. The probation officers supervise about 2,000 offenders each year, watching the kind of work they choose, where they live, what they do with their money, and the people they mix with.

Most of the people placed on probation are young offenders or first offenders. They may be placed on probation for terms ranging from one to three years.

Young Offenders

New Zealand's Child Welfare Department and the Juvenile Crime Prevention section of the Police Department work together to reduce juvenile delinquency in New Zealand. But, each year, about 6 out of every 1,000 children aged between 7 and 17 are charged with offences. The agencies try to detect delinquency in children at an early stage and to deal with the less serious offenders without court action.

Most charges and complaints brought against children aged 17 or less are heard in children's courts. But children of this age group who are charged with minor traffic offences, manslaughter, or murder must face these charges in a higher court, such as a magistrates' court. A higher court can order that a person aged 17 or 18 be dealt with in a children's court. A magistrate or a justice of the peace presides at sittings of a children's court. He usually holds such sessions informally in his private chambers. Hearings in a children's court are not open to the public.

See also GOVERNMENT OF NEW ZEALAND in this volume; MAORIS and POLICE in the other Australasian volume.

LE GALLIENNE, DORIAN (1915-1963), is regarded by many critics as the most distinguished composer Australia has ever produced.

He was born in Melbourne and studied at the University of Melbourne and the Royal College of Music in London. In 1951, he won the Commonwealth Jubilee Scholarship and spent two years in England studying with Gordon Jacob. His works include a symphony, a sinfonietta, and other orchestral works as well as chamber music and songs.

LEGENDS have always been important to the peoples of Australasia, including the Aborigines, the Malays, and the Maoris. Some of their stories were originally intended to explain the origin of such natural objects as islands, mountains, and landmarks. Some were meant to explain natural forces that the people could not understand, such as thunder and lightning. Others were told solely for the sake of entertaining people.

Aboriginal Legends

Some of the legends told by the Australian Aborigines are among the oldest of any known. For thousands of years, the Aborigines have passed on their stories by word of mouth. Older members of an Aboriginal tribe, or especially able story-tellers, recited the legends.

A legend from the Dieri tribe of central Australia describes a time when the now-arid desert was lush and fertile. Geologists know that central Australia had plentiful rain and abundant plant life during an age they call the *Permian period.* According to the legend, giant gum trees grew in the dense forest and held up the sky. Monsters known as the *kadimakara* lived in this sky-land. Sometimes they would smell the scents of the herbs and fruit on the earth below. They would climb down the trunks of the trees to feed on the fruits.

Once, when the kadimakara were feeding on the earth, one of the giant gum trees fell down. It left a hole in the sky-land. Other trees began falling, leaving great holes in the sky. Soon the sky became one big hole called *pura wilpanina* (great hole). The sky-land home of the kadimakara was destroyed, and the monsters could only roam the earth and wallow in the marshes of Lake Eyre, where they died.

When no rain falls over the desert, some Aboriginal tribesmen still make journeys to the bones of the kadimakara. They hold rituals and blood sacrifices to ask the spirits of the kadimakara to bring rain to their hunting grounds.

Many Aboriginal legends are about the rainbow snake. Some are about creatures related to him, and are only distantly connected with stories about him. One of these legends is about the water-lubra and the lotus bird. The *lubra* (woman) in this story was one of the daughters of the rainbow snake. She left the river, put on a man's hair belt, and bound up her long hair. Then she took a spear and *woomerah* (spear-thrower) and went hunting. She speared a kangaroo and cooked it on a fire. A man who was out hunting saw the smoke of the fire rising into the air. He followed it to the lubra's camp. But the lubra saw him coming. She lay face down in the dust with her arms folded in front of her. When he came up, she pretended that she was sick. She told him that he could have the kangaroo she had cooked. He thought that she was a young man. He took the kangaroo and went away.

As he walked along, he decided that the person who had given him the kangaroo was really a girl. He turned and went back to the camp. The lubra was sitting up in a bottle tree. He called to her, but she only laughed at him. He tried to climb the tree, but she sang a magic song, which made the tree grow round and smooth. He could not climb the tree, so he waited underneath it. Finally, he fell asleep and the girl climbed down. When morning came, the man awoke and saw that the girl had gone. He followed her tracks to the river-bank, where the lubra was lying in the sun with her sisters.

When the girls saw him, they dived into the river. The man ran along the bank after them. But the rainbow snake reared out of the water. The man called out the cry of the lotus bird, *keir, keir, ngeir,* as he changed into the lotus bird. This bird runs across the floating lily leaves, looking for food. The Aborigines say that the daughters of the rainbow snake still live in the river. The lubra's woomerah is a cypress pine growing there. Her spear is the blood wood tree. The man's spear is the jungle tree.

Another Aboriginal legend is about a child who had no father. It relates how the plains were covered with all kinds of flowers before the Europeans arrived with their sheep. There were no *mai* (men) in the world. Two sisters lived in a cave on Mt. Manara. The sisters went out in the evenings, looking for food in the flower-covered plains. One evening, one of the sisters stopped and picked a flower. The inside of the flower looked like a baby's face. She hid the flower between two pieces of bark and placed them under a log. Her sister did not see the flower. The next evening, when the sisters were out walking again, she went back to the log and looked at the flower again. It looked like a baby's face even more. She hid it again.

The next evening, she went again to look at the flower baby and took some possum fur to wrap around it. The child grew and grew. After a while, her sister guessed that she was taking care of a baby. She admitted it. The two sisters went to the log and took the baby back to their mountain. They called the baby boy *Mullairn.* He grew up and became a clever man. Eventually, after his death, he became a bright red star in the sky.

Malay Legends

The Malays developed many legends about characters and events connected with their early history. They also adapted many Indian or Arab legends to local traditions and conditions. They first heard these stories from traders and wandering scholars from India and Arabia.

Kancil, a little mouse-deer, is one of the favourite legendary characters of the Malays. Kancil often manages to get the better of the other, bigger animals in the jungle by his cunning tricks. One of the tales about Kancil tells how he saw some ripe, delicious-looking fruit on the far side of a wide river. He wanted to reach the fruit, but he had no way of crossing the river. Then he saw a crocodile. He told the crocodile that King Solomon had sent him to count all the crocodiles in the area. The crocodile went off and called all the other crocodiles. Then Kancil slowly made his way across the river, stepping from one crocodile's back to another, counting the crocodiles as he went. When he

Painted by Nalul, of the Jauan tribe, Roper River area.

The Rainbow Snake appears in many Aboriginal legends, including the story of the water-lubra and the lotus bird.

Kancil, the little mouse-deer, who appears in Malay legends, usually manages to outwit other, bigger animals.

Maui in Maori legends was half man and half god. Maui's feats included fishing up the North Island of New Zealand.

reached the other bank, he had a good meal of the ripe fruit.

Another day, Kancil was walking along eating stolen banana cake out of banana leaves. He was not looking where he was going, and he suddenly fell into a deep lime pit. He could not get out again because he was so small.

While he was sitting wondering what to do, a boar looked over the edge of the pit. The boar was surprised to see Kancil sitting at the bottom of the pit, eating banana cake out of banana leaves. He asked why he was sitting there. Kancil replied that he had been reading on the banana leaf that the world was coming to an end that very day. Only those who sat in sacred lime pits would go on living. The boar was frightened when he heard this. He asked Kancil if he could sit in the lime pit as well. Kancil shook his head. "No, you might sneeze. It says on the banana leaf that anyone who sneezes in sacred places must be thrown out." The boar promised that he would not sneeze, and Kancil allowed him to climb down into the lime pit. Kancil went on pretending to read the banana leaf.

Next, a tiger looked into the lime pit. He was surprised to see the boar and Kancil sitting there. Kancil explained again that it was the last day of the world and that only those who sat in sacred lime pits would survive. The tiger wanted to get down into the lime pit, but Kancil refused to let him. "You might sneeze, and no one is allowed to sneeze in a sacred lime pit. We would have to throw you out", he said. The tiger promised that he would not sneeze, and Kancil let him climb down into the

lime pit. An elephant who promised not to sneeze also got into the lime pit so that he would go on living after the last day of the world.

Kancil pretended to go on reading the banana leaf. Suddenly, he stopped and looked at the elephant. "Are you going to sneeze? If you are, we shall have to throw you out." The elephant replied that he was not going to sneeze. Kancil went on reading. Suddenly, he stopped again and took hold of his nose. The other animals looked at him. Kancil sneezed. "Out! Out!", they cried. "Kancil has sneezed in a sacred lime pit!" They took hold of him and threw him out of the lime pit, which was just what Kancil had wanted them to do.

Maori Legends

The Maoris believed that Rangi, the sky-father, and Papa, the earth-mother, were the sources of all things. Their many children lay between Rangi and Papa, and grew tired of the constant darkness. They decided to part their parents in order to see the light. All the brothers tried. Tane, the god of the forests and birds, finally managed to part his mother and father.

Tawhirimatea, the god of winds, was annoyed with his brothers. He sent out storms to destroy the forests and to stir up the sea. He caused great confusion everywhere. But Tumatauenga, the ancestor of man, withstood the attacks of Tawhirimatea. Then Tumatauenga felt that his brothers had been cowards. He revenged himself on each of them in turn. He ate the fish of Tangaroa, the god of the fish. He made baskets from the children of Haumiatiketike, the god of wild foods and the fern root, and ate earth roots, the property of Rongomatane, the god of the kumara and cultivated food. Only the god Tawhirimatea remained for Tumatauenga to fight against, as he still does.

Many Maori legends concern Maui, who was half man and half god. Rangi adopted him and gave him magic powers. His brothers were suspicious of him and would not let him go fishing with them. One night, Maui hid himself under the decking of their canoe. The next morning, the brothers went off fishing as usual. When the canoe was well out to sea, Maui came out of his hiding-place.

His brothers caught a great many fish. Then Maui put out his line with its magic carved hook. It sank to the bottom of the sea and caught in the doorway of the house of Tongaui, the son of Tangaroa. Maui began to chant and his brothers became afraid. Maui's great "fish" floated up to the surface. It was a large island of the earth, Papa. The canoe came to rest on the shore of the island.

Maui left the canoe to go to a village in search of a priest who would offer prayers and sacrifices to the gods for such a large catch. He warned his brothers not to touch the fish until he returned. But, as soon as he left, his brothers began to carve up the fish. The gods were annoyed, and they made the fish heave and toss. According to the Maori legend, this is why the North Island of New Zealand (Maui's fish) is so mountainous. The island is irregular where Maui's brothers cut pieces off it.

As time passed, Maui noticed that the sun rose and set too quickly for the people to do their work. His wife got up one morning to cook him a meal, but, before it was ready, the sun went down and they had to eat in the dark. Maui decided that he would make Ra, the sun, slow down. He went to his grandmother to ask her to help him. She gave him a magic club. Maui and his brothers made a great net in which to catch the sun. Then they set off for the edge of the world where the sun rose each day. They travelled at night so that the sun could not see them. Finally, they reached the great pit where the sun rose. In the morning, Ra rose as usual in a great hurry and found herself caught in the net. She tried to get out, but Maui and his brothers held the net fast. Maui, with his magic club, began beating the sun. The sun cried out "Stop beating me. What do you want?" Maui replied that the sun must promise to go more slowly across the sky. The people did not have enough time to do their work in the light. Finally, Ra promised to go more slowly. She did not intend to keep her promise, but the blows from Maui's club had hurt her. As a result, she had to keep her promise and go more slowly.

Another famous legend is about Hinemoa, a beautiful Maori girl of high rank. She loved Tutanekai, a young chief who lived on the island of Mokoia in Lake Rotorua. Her parents would not let her marry anyone. In the evenings, Tutanekai played a horn while his friend Tiki played a pipe. Hinemoa, at her home on the other side of the lake, could hear Tutanekai's music. She would have liked to paddle a canoe across to see him, but her parents knew this. They pulled all the canoes up onto the beach. One night, Hinemoa decided to swim to the island. She took six large, dry gourds as floats. She reached the island, guiding herself by Tutanekai's music. She was cold, and found a warm spring where she could warm herself. While she was at the spring, a servant came to fetch water in a gourd for Tutanekai. Hinemoa hid among the ferns. She called out in a deep voice, asking who was there. The servant was frightened. He said that his master, Tutanekai, had sent him to fetch water from the spring. Hinemoa took the gourd from the servant, drank the water herself, and broke the container. The servant returned to his master without the gourd. Tutanekai gave the servant another gourd to fetch water in. But Hinemoa broke that, too. Tutanekai became angry. He went to the spring and asked loudly who was there. Hinemoa recognized his voice, but she hid herself so that he had to search for her. When Tutanekai found her, he led her to his house, and they lived there for the rest of their lives.

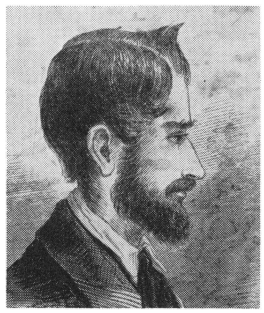
LEGISLATIVE ASSEMBLY. See New South Wales (Government); Queensland (Government); Victoria (Government); and Western Australia (Government) in the other Australasian volume.

LEGISLATIVE COUNCIL. See New South Wales (Government); Northern Territory (Government); South Australia (Government); Tasmania (Government); Victoria (Government); and Western Australia (Government) in the other Australasian volume.

Australian News and Information Bureau

Leigh Creek is one of Australia's major coal-mining centres. Its coal supplies a source of energy for 40 per cent. of South Australia's electric power.

LEICHHARDT, LUDWIG (1813-1848), was a German-born explorer. His disappearance while on a journey across Australia still remains a mystery. He tried to find a practical route from Moreton Bay (now Brisbane) to Perth. He left Moreton Bay in February, 1848, with a party of seven men, including two Aborigines. Historians believe that the expedition was ill-equipped, because Leichhardt assumed that his party could live off the countryside. The party completely disappeared. During the next 90 years, nine major searches were organized to try to find traces of the party. Many minor searches were also organized. Some of them found bones and other relics. But none of them found definite evidence to link their discoveries with Leichhardt.



The Mitchell Library

Ludwig Leichhardt

Many theories have been advanced to explain what happened to the party. According to one story, the party mutinied and killed Leichhardt and all were later killed by Aborigines except for one member, Adolf Classen, who lived on among the Aborigines. Some historians believe that Leichhardt and his men could have died in sudden floods in the channel country in Queensland. Other historians claim that Leichhardt and his party probably died of thirst.

In 1852, the first expedition set out to look for the men. It was led by Hovenden Hely, who had been a member of an earlier Leichhardt expedition. He searched wide areas of western Queensland but found no trace of the missing party. In 1871, the Queensland government sent J. M. Gilmour, a sub-inspector of police, on two expeditions to investigate reports that a European was living with Aborigines. Gilmour found several skeletons, pieces of clothing, and a tomahawk. But he found no trace of a European living with Aborigines.

The last Leichhardt expedition set out in 1938 when the South Australian government sent a well-equipped party under Sir Grenfell Price into the Simpson desert to look for remains. They found some bones and a coin dated 1841, the year Leichhardt left England. But nothing they found could be conclusively linked with Leichhardt.

Leichhardt was born at Trebatsch in Prussia (now in East Germany). His full name was FRIEDRICH WILHELM LUDWIG LEICHHARDT. He studied at the universities of Berlin and Göttingen but never gained a degree. William Nicholson, a friend, paid Leichhardt's fare to Australia so that he could study the natural sciences of the continent. Leichhardt landed in Sydney in 1842. Later the same year he went to the Hunter Valley, where he studied the geology and plants of the area.

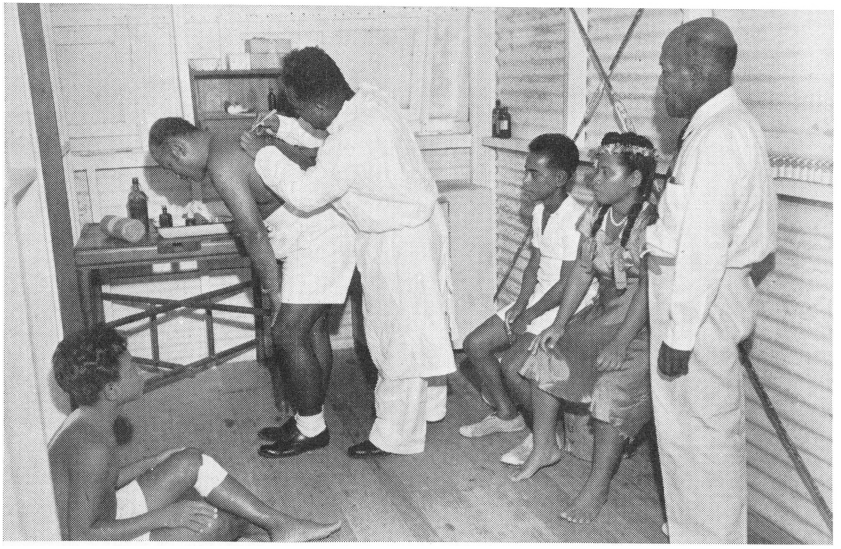
In 1843, he journeyed overland from Newcastle to Moreton Bay. In October, 1844, he left the Darling Downs with a party of nine men on an overland expedition to Port Essington, near Darwin. Two of the party turned back. John Gilbert, another member, was killed when Aborigines attacked Leichhardt's camp. The remaining seven reached Port Essington on Dec. 17, 1845. Their journey of exploration had taken them more than 4,800 kilometres (3,000 miles) across country.

In December, 1846, Leichhardt set out on his first attempt to cross the continent from the Darling Downs in Queensland to the Swan River in Western Australia. He was forced to turn back.

See also AUSTRALIA (Physical Features and Discovery [map]) in this volume.

LEIGH CREEK (pop. 943) is a coal-mining centre in South Australia. For location, see SOUTH AUSTRALIA (map) in the other Australasian volume. The sub-bituminous coal of the area is mined by open-cut methods. Mechanical shovels dig out the coal, which is then crushed and sent by rail to Port Augusta, where it is used to generate electricity. The township of Leigh Creek lies in a dry, barren area. The Aroona reservoir, built in 1956, provides its water supply. Coal was discovered in the area in 1888.

LEPER COLONIES. In Australia, the federal and state governments support leper colonies at Derby, in Western Australia; the East Arm Settlement, in the Northern Territory; Fantome Island, in Queensland; and Little Bay, in New South Wales. In addition, leprosy patients can be treated in isolation at special wards at the Fairfield Hospital, in



The Nauru Leper Colony is helping to bring the disease under control in Australasia. Most colonies provide isolation and free care for people with leprosy.

Australian News and Information Bureau

Victoria, and the Wooroloo Hospital, in Western Australia. The government provides six colonies throughout Papua New Guinea. Church missions provide another five colonies in Papua New Guinea. There is also a colony on Nauru.

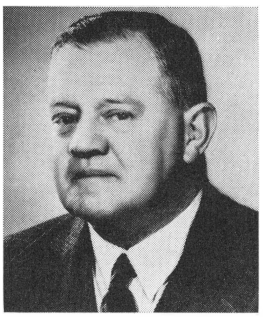
In Indonesia, leprosy patients can be treated at the Central Leprosy Institute in Jakarta. Church missions control four other colonies—at Belawan, in northern Sumatra; at Manado and Makasar, in Sulawesi; and at Samarinda, in Kalimantan.

The Malaysian and Singapore governments control all the leper colonies in their countries. Five colonies, including the famous Sungei Buloh Settlement, provide treatment in Malaysia. The colony in Singapore is an open village. At Makogai Island, in Fiji, the Fiji Leprosy Hospital has won world-wide fame for its treatment and care of patients.

See also LEPROSY in the main volumes.

LESCHENAULTIAS. See LECHENAULTIAS in this volume.

LEWIS, ESSINGTON (1881-1961), a mining engineer, did much to establish Australia's steel industry. For almost 30 years, he was general manager of Broken Hill Proprietary Company Ltd. (B.H.P.). He was also chairman of the company from 1950 to 1952. In these positions, he established B.H.P. as one of the world's most efficient steel companies. Lewis was born at Burra, in South Australia. He began working with B.H.P. in 1905. He became general manager in 1921.



Australian News

Essington Lewis

LEWIS PASS is the major highway route over the Southern Alps in the South Island of New Zealand. It lies near the central part of the island and stretches between the upper valley of the Lewis River, in the east, and the Maruia Valley, in the west. At its highest point, the Lewis Pass reaches about 863 metres (2,840 feet) above sea level.

LIANAS are climbing plants. They grow in the tropical rain forests of Australia, Indonesia, Malaysia, New Guinea, and Singapore, and in the temperate rain forests of New Zealand. They twist around the stems of tall trees and grow towards the light.

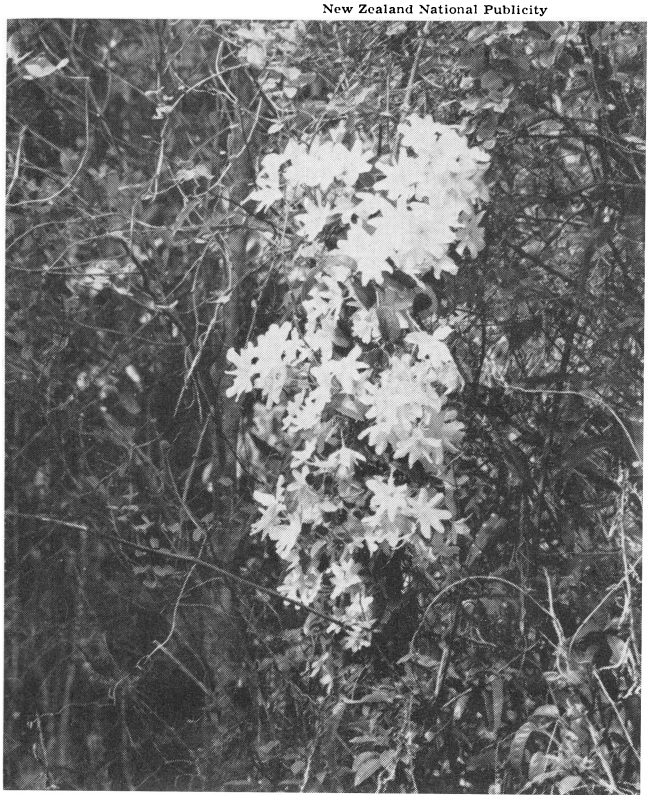
Lianas of the tropical rain forests include arums, bamboos, butterfly climbers, and palms. Lianas of the temperate rain forests of New Zealand include supple jacks and plants of the *Clematis* group and of the *Convolvulus* group.

See also CLEMATIS and CONVOLVULUS in the main volumes.

LIBERAL PARTY. See POLITICAL PARTIES OF AUSTRALIA (Main Parties) and POLITICAL PARTIES OF NEW ZEALAND (Minor Parties) in the other Australasian volume.

Some Lianas, such as the Clematis plants of New Zealand, bear flowers that hang down in long, spectacular groups.

New Zealand National Publicity



LIBRARIES play an important part in the life of the community. They offer people the opportunity to widen their knowledge, develop leisure interests, and become acquainted with the works of the world's best writers. Libraries throughout Australia, Indonesia, Malaysia, New Zealand, and Singapore keep thousands of books on all kinds of topics. They lend these books to readers, and provide such other services as helping people who want to do research on some topic. See LIBRARY in the main volumes.

Library Facilities

Australia. In general, library facilities in Australia are good and are gradually being improved. Readers almost anywhere in the country can obtain without cost any books that they need. Sometimes a reader may require a book that is not available in his local library. The library will then borrow it for him from some other library that has it in stock. Readers may also obtain photographic copies of books or parts of books not available in their original form.

Indonesia. As part of the Eight-Year National Development Plan that began in 1961, Indonesia aimed to improve and extend library facilities. The country's first need was to train suitable people for library work. A library school is attached to the University of Indonesia. International organizations and the governments of other countries have helped Indonesia to improve its library facilities. UNESCO and the governments of Australia, Britain, France, New Zealand, the Philippines, and the United States have given aid since 1953, mainly by providing library experts to organize and advise. But Indonesia has to overcome many difficulties in providing good library services. The population of 106 million is scattered over 3,000 islands, the level of literacy is low, and the people speak several languages. The number of books available is still inadequate.

Malaysia and Singapore, like Indonesia, are developing and extending their libraries and library services. Many public libraries have been established since 1955, and travelling libraries serve rural areas of Malacca. But the libraries cannot yet satisfy every request for books made by readers. In particular, they cannot meet fully the demand for books in the Malay, Tamil, and Chinese languages.

Libraries in Malaysia are reluctant to build up stocks of books in English and other European languages, because Malay became the sole official language in 1967. Many books are published only in English. By stocking them, libraries would encourage readers to learn English. This attitude has had a retarding effect on public library services.

New Zealand is well provided with libraries and library services. But the National Library and other library bodies work to extend the facilities available. Through the inter-library loan system, readers can obtain most books that they require at main libraries or at their local libraries.

Public Libraries

Australia. Each of the six states has a library board that is mainly concerned with the state's

Beverley Clifford

public library. In New South Wales, the state public library is called The Library of New South Wales. In Queensland it is called the *public library,* and in other states it is called the *state library.* The libraries are situated at Adelaide, Brisbane, Hobart, Melbourne, Perth, and Sydney. The organization of state public libraries varies in detail from state to state. The library of each state has a right to receive copies of all publications in the state. This right is given by the Copyright Act or the Library Act.

The state public libraries provide several services. They subsidize municipal libraries that issue books free to readers. They circulate books and book collections to rural communities. They provide a library service by means of travelling book-vans to more scattered areas. Their general policy is to lend books free, or at least to lend non-fiction books free.

The state public libraries have comprehensive collections, ranging from South Australia, with 270,000 volumes in its reference branch, to Victoria, with 2,800,000 volumes in its reference branch. They provide extremely good facilities in their cities for research and reference work. They also act rather like national libraries for their particular states. They are the central agents for requests for books from individuals and other libraries, and they also do some bibliographical work. All the state public libraries, except that of New South Wales, administer their own state archives. The state public libraries cooperate with university libraries in *inter-library loan* (lending each other books).

People in Canberra and the rest of the Australian Capital Territory, in the Northern Territory, in Papua New Guinea, and in Norfolk Island use library services provided by the National Library, at Canberra, which has depots at central points.

Indonesia. Public libraries in Indonesia are administered by the Bureau of Libraries and Book Development, the Directorate General of Community Development, and the Department of Information. There are more than 3,500 public libraries, but they are declining in number because of the development of *state libraries.* About 24 state libraries have been established. They provide, in particular, better reference and study services than the public libraries. They have provincial headquarters that keep large stocks of books. For example, Yogyakarta has 75,000 volumes and Makasar has 12,500 volumes. The provincial libraries generally lend books and charge subscription fees.

Malaysia and Singapore. In 1955, a group of Chinese educationists and businessmen founded the Malayan Public Library Association. With the help of private people and institutions, the association established libraries in towns and villages in many parts of Malaya. Each of these libraries had at least 1,000 books. By 1959, there were 150 Chinese and 80 Malayan libraries. The larger towns had subscription

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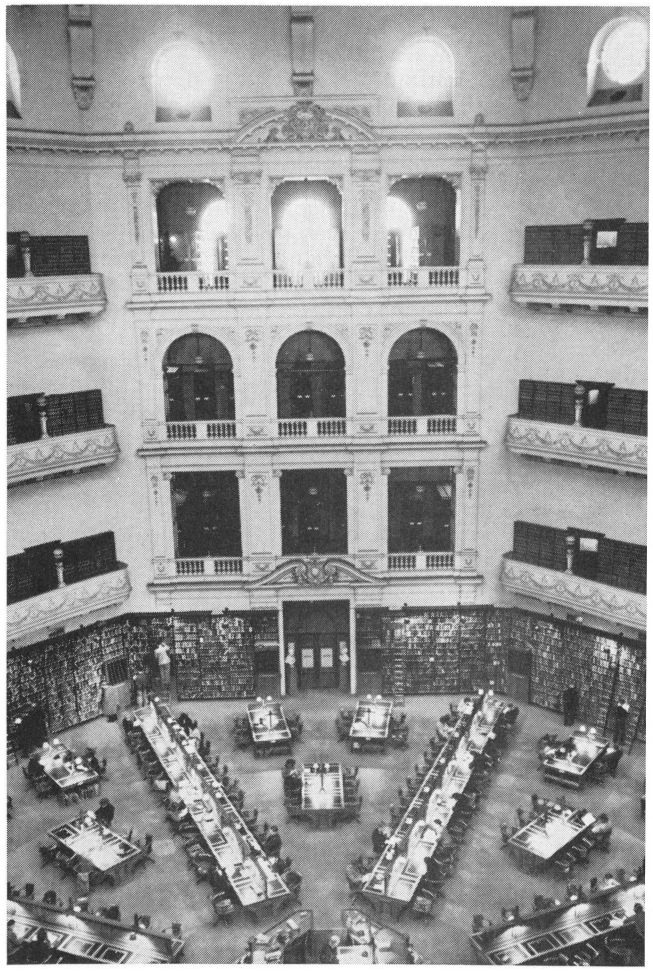


School Libraries provide books for their students, *left.* Book-vans serve country areas, *above right.*

Public Libraries, such as the Melbourne Public Library, *right,* provide information on all subjects.

libraries, many of which now lend books free. The Kuala Lumpur Book Club, long established as a private subscription library, has a large collection of books and performs some of the functions of a public library. The Chinese Assembly Hall Public Library, also in Kuala Lumpur, has 20,000 Chinese books. Many libraries in Malaysia, such as those at Penang, Jesselton, and Kuching, lend to members only. The Singapore National Library functions as a public library and as a national library.

New Zealand. All cities and towns in New Zealand have libraries. Most of these libraries are the responsibility of the municipal authorities. But many smaller libraries receive books and other aid from the Country Library Service, a division of the National Library. Many libraries lend pictures and gramophone records as well as books. The larger city libraries extend their service to country areas through branch libraries and travelling book-vans. Most public libraries in New Zealand have popular children's sections as well as books for adults.

School Libraries

Australia. State education departments provide libraries in state secondary schools and most departments provide libraries in state primary schools. Most private schools have had libraries at secondary level, but few have had them at primary level. The federal government provides aid to secondary school libraries, both state and private, for library buildings, materials, and equipment.

School libraries need trained librarians. In the past, usually only the larger secondary schools had trained library staff. But now most secondary schools and even many primary schools have trained librarians. Most state education departments conduct library training courses at teachers' colleges for their teachers.

Each state education department has a central school library service. The service maintains advisory staff for school libraries; assists schools in selecting library materials; and in some cases even catalogues and processes books before they are sent to school libraries.

Most state education departments make a grant of money to each state school. If further funds are required, they are raised by the school. Secondary schools also obtain federal funds for library material. This system applies to both private and state schools.

New libraries in secondary schools are being built to provide many new materials, such as slides, filmstrips, and audio and video tapes. The equipment to use these materials is also being provided. Many primary school libraries are being built along the same lines. Such libraries are being referred to as *resource centres, library resource centres, instructional materials centres,* and other similar names.

Indonesia. In 1960, the Department of General Education set up a school libraries section to help the development of libraries in both primary and post-primary schools. The school libraries section spends 10 per cent. of the funds available for reading materials. School librarians are trained to instruct children in how to use books. Lists of book titles give school librarians guidance in selecting books.

Malaysia and Singapore. Some larger secondary schools in Malaysia and Singapore have libraries paid for by a levy on each pupil of $M 1 (2*s.* 4*d.*) every year. In more than 5,000 secondary schools, libraries are still inadequate, partly because there are not enough suitable books in the Malay language. Few libraries have trained librarians, and little instruction is given to children in using a library. The government and some religious missions are steadily improving library facilities in schools.

New Zealand. The school library section of the National Library Service provides about 2 million books for school-children of all ages. More than 2,800 schools and 200 libraries use this service. Collections of books are circulated for a period in one school and are then passed on to another. As part of its functions, the school library service gives assistance in the use of books and other materials and supplies specific books and information.

University Libraries

Australia. Each Australian university has a library. The older universities have larger libraries than the new universities. The Fisher Library at the University of Sydney has more than 1,296,000 volumes, the Australian National University, at Canberra, more than 505,000, and Monash University more than 383,000. The universities co-operate with each other to make books and information readily available at any other university library. The university libraries also co-operate with state public libraries and with the National Library at Canberra.

Indonesia. Few of the 22 state universities of Indonesia have general libraries. In most universities, the book collections are housed with the particular faculties. Many of these collections are well accommodated. Libraries do not have enough trained staff, partly because of the rapid increase in the number of universities—from 2 in 1953 to 22 in 1966. Other countries have given aid to help with training and with the supply of periodicals.

Malaysia and Singapore. The University of Singapore, established in 1962, has a collection of 520,000 volumes. The Nanyang University, established at Singapore in 1953, and the University of Malaya, founded near Kuala Lumpur in 1962, have about 120,000 volumes each. These two universities have particularly good collections of Chinese and Malay works. The University of Singapore has a fine collection of English books. In addition to lending books to staff and students, these university libraries also do photographic copying and arrange inter-library loans.

New Zealand. The four older universities at Auckland, Christchurch, Dunedin, and Wellington have large libraries. The library at Auckland specializes in architecture, that at Christchurch in engineering, and that at Dunedin in medicine. The agricultural college at Lincoln has the Forbes Memorial Library. The broadened range of studies at the Massey University, at Palmerston North, formerly concerned only with agriculture, is reflected in the development of its library. At Hamilton, the new

Waikato University is building up a library. These libraries co-operate and arrange inter-library loans.

Special Libraries

Australia. The Mitchell Library, in Sydney, the bequest of David Scott Mitchell, is the most famous library in Australia. It is under the general administration of the Public Library of New South Wales, where it is housed. The Mitchell Library specializes in books, manuscripts, maps, and pictures on the Pacific area. It was greatly enriched by the bequest of the Dixson Collection. The Australian War Memorial Library, at Canberra, has an excellent collection of books on its specialized field.

The several collections of the Commonwealth Scientific and Industrial Research Organization have a total of more than 250,000 volumes on all aspects of science. The museums have good collections that are used by specialist students, as are the libraries of the Australian Medical Association, the Royal Societies, the Linnean Society, and other learned bodies. The Oxley Library of Queensland and the Sir Josiah Symon Library in the State Library of South Australia are examples of the generosity of private benefactors. The Geographic Society of South Australia owns the York Gate Library of books on early travel.

Indonesia. Most special libraries in Indonesia are attached to museums, research organizations, societies, government departments, and the parliament. As a result, they serve limited groups of readers or members. The Cultural Foundation of Indonesian Museums Library has about 400,000 volumes, and performs some of the services of a national library. The library of the Ministry of Works and Communications has about 250,000 volumes, and that of the Botanic Gardens of Bogor has about 120,000.

Malaysia and Singapore. The Rubber Research Institute, at Kuala Lumpur, has a particularly useful and progressive collection of 35,000 volumes. Dewan Bahasa Dan Pustaka (the Language and Literature Agency), also at Kuala Lumpur, has an emphasis on Malay in its 18,000 volumes. The Botanic Gardens Library, at Singapore, has a specialized library of more than 8,000 volumes. The Singapore Polytechnic Library has a good technical collection of 18,000 volumes. The library of the Teachers Training College at Singapore has 28,000 volumes.

In Kuala Lumpur, the British Council has an excellent collection of 28,000 books, all in English. The 19,000 volumes in the United States Information Service Library include books in Chinese and Malay. Government departments also have several good collections.

The National Archives of Malaya are at Petaling Jaya, near Kuala Lumpur. The Malaysian library authorities plan a records management centre to organize records before they become archives.

New Zealand. The General Assembly Library, concerned mainly with serving the New Zealand parliament is one of the longest-established and best-stocked libraries in New Zealand. It has more than 300,000 volumes. It also plays a large part in the library service of the country, meeting the needs of research workers and students. It is the only copyright library in New Zealand.

The Alexander Turnbull Library is a particularly good research library, specializing in Oceanic and English literatures. It has about 120,000 volumes as well as manuscripts, maps, and pictures. The Hocken Library, attached to the University of Otago, at Dunedin, has a good collection of books on New Zealand. The Auckland Museum Library has excellent collections on the Pacific area and on natural history that are readily available to students. The Grey Collection in Auckland Public Library has interesting resources in English literature and New Zealand history. The Napier Museum also has a good collection of material on New Zealand.

The library of the Department of Scientific and Industrial Research is the largest and most actively used of the several excellent libraries attached to government departments.

National Libraries

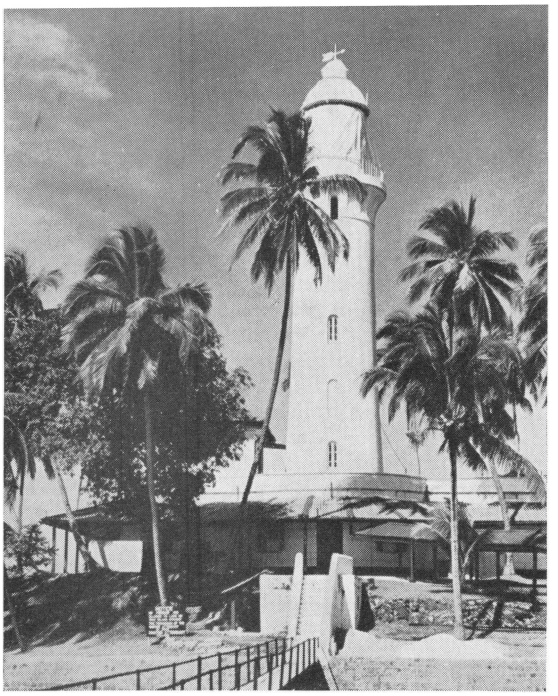
Australia. The National Library of Australia, at Canberra, once the library of parliament, has more than 1·2 million volumes, as well as maps, pictures, microfilm, and cinematograph films. It receives, by law, copies of all books published in Australia, and collects all books that may be useful to Australian students. The National Library maintains reference libraries in Australian embassies and offices in other countries, and also provides library services in other Australian territories.

The Australian Bibliographical Centre provides information on bibliographical matters, and co-operates with other libraries, especially the six state public libraries.

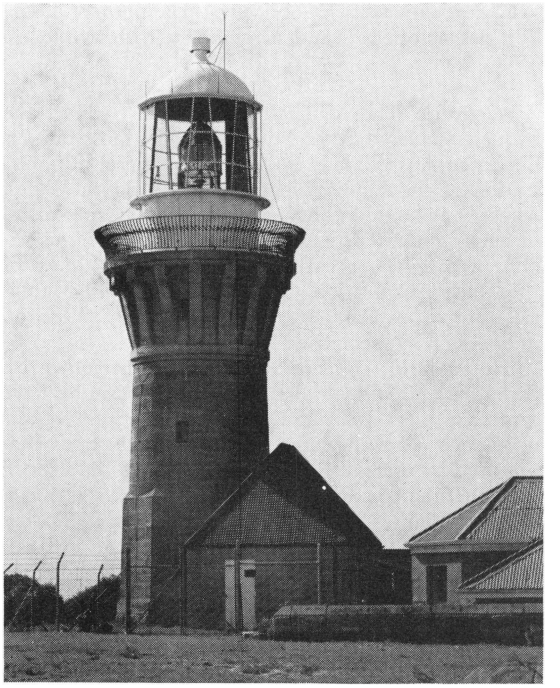
Indonesia. The Indonesian National Library was proposed in the country's Eight-Year Development Plan. The first of its functions to begin operating include the Bureau of Libraries and Book Development, which co-ordinates the work of state libraries, the National Bibliographical Centre and Union Cataloguing Service, and the Public Library Service, which is concerned with Indonesian public libraries.

Malaysia and Singapore. The Singapore National Library, originally founded in 1823 as the Raffles Library, is still being developed. It has good collections of Malaysian and oriental books. Because of the great demand for books, the library at present functions more as a public library than as a national library. The *Perpustokaan Negara* (National Library) of Malaysia is in Kuala Lumpur.

New Zealand established a national library in 1966, by an act passed by Parliament of 1965. The General Assembly Library, the Alexander Turnbull Library, and the former National Library Service are constituent parts of the National Library. The functions of the National Library include central cataloguing, the Union Catalogue, indexing and bibliographical services, and providing help to libraries in small towns and rural communities, partly by book-vans and partly by deposits of books. The provision of books and inter-library lending is made more effective through the National Library. The total stock of books, apart from the School Library Services, is 1,400,000.



Ministry of Culture, Singapore; Beverley Clifford



Lighthouses have many shapes and sizes. They range from the tall, rounded Raffles Lighthouse, off Singapore, to the squat, colonial Barrenjoey Lighthouse, north of Sydney.

LICENSING LAWS are the laws relating to the sale of alcoholic drinks. Bars must close at 10 p.m. in Australia and New Zealand. Until the 1960s, bars in New Zealand and several states in Australia had to close at 6 p.m. Only Western Australia and Queensland allow the sale of alcoholic drinks on Sundays, and then only for limited periods.

The legal age for drinking in hotels is 18 in New South Wales, Victoria, and Western Australia; 20 in New Zealand, South Australia, and Tasmania; and 21 in Queensland and the Northern Territory. Indonesia and Malaysia have no comparable laws.

LIGHT, WILLIAM (1786?-1839), was the founder and planner of Adelaide. When the British government agreed to the colonization of South Australia, the South Australian Commissioners appointed Light as their surveyor-general. They instructed him to select a suitable site and plan a town, and to survey the surrounding land for farms and roads. He explored Gulf St. Vincent and finally selected the site for Adelaide about 6 miles inland from Holdfast Bay. Colonists criticized him for his selection of the site, because they considered it too far inland. They also criticized him for not surveying sufficient farming land, even though his staff was inadequate to do the job. In 1838, he resigned as surveyor-general of the colony. Light's original plan made Adelaide unique as a city.

William Light

The Mitchell Library

Light was born in Malaya, possibly in the state of Kedah. He began his career in the British navy in 1799. In 1808, he entered the British army, and served in Spain and Portugal. He retired as a colonel in 1821. Light died at Adelaide, and was buried under William Light Square, near the heart of the city.

See also ADELAIDE and HISTORY OF AUSTRALIA (Other Settlements) in this volume.

LIGHTHOUSES. In Australia, the federal government maintains lighthouses used by ships sailing between ports, and the state governments maintain those used by ships entering or leaving harbour. More than 165 of the 221 lighthouses along the coast of Australia are automatically controlled. In Malaysia, the Light Dues Board maintains all lighthouses, including those in Singapore. The most important lighthouses are the Fort Cornwallis and Pulae Riman lighthouses in Penang and the chain of automatic lighthouses in the Strait of Malacca. In New Zealand, 25 manned and 66 unmanned automatic lighthouses safeguard shipping. The Marine Department maintains all coastal lighthouses. The largest lighthouse in New Zealand is the Stephens Island lighthouse, rising about 180 metres (600 feet) above sea level.

LIGHTNING RIDGE is an opal mining locality and tourist centre in central northern New South Wales. For location, see NEW SOUTH WALES in the other Australasian volume. The Lightning Ridge opal field is acknowledged as the only source of the best quality black opal in the world. Other precious stones, such as agate, jasper, and topaz, are also found there. Opal dirt is extracted by mechanical means. Many people flocked to the field in search of opals between 1905 and 1915. Today the township has only about 120 dwellings.

LINDA is a ghost town near Queenstown in western Tasmania. It was once a busy copper-mining centre. The town was originally called Linda Valley, but the name was later shortened to Linda. When the North Lyell mine was in full production, the town presented a scene of mullock heaps, rough office buildings, windlasses, pack tracks, blacksmith's forges, and tunnel mouths. At one time the township and its suburb of North Lyell had two public halls, two hotels, six boarding houses, about 20 business premises, and a railway station. People came to Linda for sporting activities, such as woodchopping, steel-drill driving competitions, football matches, two-up, and athletic carnivals. The population grew to about 2,500 in 1902 and 1903. Falling output and lowered prices for copper caused people to move out. In 1912, a fire in the North Lyell mine caused the deaths of 42 miners. The railway line to Kelly's Basin closed down and Linda became a ghost town.

LINDEMAN ISLAND. See GREAT BARRIER REEF (Things to See and Do) in this volume.

LINDRUM, WALTER (1898-1960), was an Australian billiards player who dominated his sport for almost 20 years. He first became world billiards champion in 1932, and held the title until 1950, when he retired unbeaten. During this time, many players challenged him, but none succeeded. At one stage in his career, he gave the next best players in the world starts of at least 7,000 points. In 1932, he scored his world record of 4,137 points in only 2 hours 55 minutes. By 1950, he held 57 world records. By giving exhibitions throughout the world, Lindrum raised vast sums of money for charity. He was born at Kalgoorlie, in Western Australia, and his father taught him to play billiards.

LINDSAY is the name of an Australian family of talented artists and writers. They include three brothers, Lionel, Norman, and Daryl, who were born at Creswick, in Victoria.

Walter Lindrum remained unbeaten for more than 18 years as world billiards champion. He perfected the cannon shot.
Australian News and Information Bureau

Sir Lionel Lindsay (1874-1961) won an international reputation as an etcher, wood engraver, and water colourist. He began his career in Melbourne as a newspaper illustrator. Later, he was a journalist and art critic.

Norman Lindsay (1879-1969) became known for his pen drawings, water colours, and oil paintings. He also achieved a reputation as a cartoonist, illustrator, novelist, and critic. He wrote and illustrated a popular book for children, *The Magic Pudding* (1919). For many years, he worked for *The Bulletin,* a Sydney magazine. His novels include *Redcheap* (1930) and *Saturdee* (1933).

Sir Daryl Lindsay (1890-), an artist, became known for his studies of ballet dancers and landscapes in watercolour. He was director of the National Gallery of Victoria from 1942 to 1956. He became a member of the Commonwealth Art Advisory Board in 1953. In World War I, he was a war artist.

LINDSAY, DAVID (1856-1922), an Australian explorer, is often referred to as the "last of the explorers". He opened up many unexplored regions of South Australia and the Northern Territory. He gained a reputation for his bushcraft, especially after leading an expedition to chart the arid country west of Warrina, in South Australia, in 1891 and 1892. On earlier expeditions in the Northern Territory, he discovered mica near the Queensland border, and explored the region around the Macdonnell Ranges. Lindsay was born at Goolwa, in South Australia. He became surveyor-general of the Northern Territory in 1878. From 1918 to 1922, he made detailed surveys of many unexplored parts of Western Australia and the Northern Territory.

LINDWALL, RAY (1921-), was one of the greatest fast bowlers ever to play cricket for Australia. Between 1946 and 1959, Lindwall took 228 wickets in 61 test matches at an average of 23·05 runs a wicket. Only Richie Benaud has bettered this performance (see BENAUD, RICHIE, in this volume). Lindwall's best bowling figures were 6 wickets for 20 runs against England in 1948. Cricket enthusiasts remember him for his almost perfect run-up and bowling action. Lindwall was also a useful batsman. He scored 100 against England in the third test match in 1947. His full name is RAYMOND RUSSELL LINDWALL. He gave up the prospect of a career as an international Rugby League player to concentrate on cricket.

LISMORE (pop. 20,901) is a city in the extreme north-east of New South Wales. It lies on the northern arm of the Richmond River, in the Northern Rivers District.

The city is the marketing centre for a prosperous farming region. This region is one of the most densely populated rural areas in Australia. Nearly a third of the butter produced in New South Wales comes from the area around Lismore. Other important farming activities include pig and beef raising. Some farmers grow bananas and sugar-cane.

A pastoralist, William Wilson, was granted land in the Lismore area in 1843. Lismore became a municipality in 1879 and a city in 1946.

LITERATURE OF AUSTRALIA

LITERATURE OF AUSTRALIA is a distinct part of the great body of writing in English. It is related to the literature of such other countries as Britain, Canada, and the United States. But it is clearly Australian.

Australians took many years to develop a national literature. Gradually, as the nation grew, a rich and imaginative literature began to appear. Today, Australians can point with pride to their literary achievements and the promising future of their literature both at home and abroad.

Throughout its course, Australian literature has followed two distinct but interweaving forms of writing—one chiefly concerned with coming to terms with the Australian environment, and the other concerned with the writer's personal vision of life. It developed from a pioneering society during a time of exploration, discovery, and development. Most writers were European immigrants who wrote mainly to convey information to readers back home in Europe. Gradually, authors felt an increasing need to report and interpret experiences for local readers. They worked eagerly to know the new society and to recognize its identity. As the separate colonies moved towards federation, a sense of national identity emerged more strongly. But longings for Europe lasted for many years, and still persist today. Such authors as Henry Handel Richardson felt deep longings for the European way of life. At the same time, Tom Collins expressed the belief that he wrote from "that central point of the universe, Riverina proper". Later, Australian writers began to accept their environment without self-consciousness. Today, most of them can write with equal ease on Australian or international themes, as they feel necessary.

The First Period (1789-1890)

Early settlers in Australia were convicts, civil officials, and members of military forces. The convicts were a cross-section of British society. They were mainly illiterate country-folk and city-dwellers, but some were political prisoners and people from the upper classes. Free settlers followed immediately, and quickly outnumbered the unwilling exiles. For many of these people, their cultural, family, and sentimental ties remained with their homelands. Others welcomed the new way of life. Together, they produced a literature of observation, personal experience, and general reporting, mainly to their "overseas" readers. Most literary works were reports—letters, journals, diaries, log-books, and official dispatches. Their authors commented on the new and the curious: the plants and animals they saw, the Aborigines, and the interesting experiences that befell individual settlers. With these early settlers and exiles, there also came an oral literature—British street ballads and country songs that were rapidly adapted to become local ballads.

The Earliest Writers. The first book that arose out of the beginnings of white settlement in Australia was *The Voyage of Governor Phillip to Botany Bay,* printed in Britain in 1789. It was a collection from Governor Phillip's official papers (see PHILLIP, ARTHUR, in the other Australasian volume). Most interesting of the early annals and surveys were the books of Watkin Tench (1758-1833), who wrote *A Narrative of an Expedition to Botany Bay* and *A Complete Account of the Settlement at Port Jackson.* Tench wrote in elegant prose, and with a liveliness that makes his books still interesting to read. Both David Collins (1756-1810) and John Hunter (1737-1821) described the new settlements at Port Jackson and Norfolk Island. Other significant annalists of this early period were John White (1750-1832); James Tuckey (1776-1816); and George Barrington (1755-1804), who, in 1794, claimed to have written *A Voyage to Botany Bay,* based on his life as a convict. Another convict, James Hardy Vaux (1782-1853), entertained readers with his humorous *Memoirs.* Writing memoirs became popular. Leading writers of this type of book were a convict named Mellish; Joseph Holt (1756-1826); and George Loveless (1797-1874), who, in 1837, wrote an autobiographical work, *The Victims of Whiggery,* concerning the Tolpuddle Martyrs, a group of political convicts (see TOLPUDDLE MARTYRS in the other Australasian volume).

As the new settlements developed, authors stirred up controversies with a series of pamphlets, many of them printed locally. The *pamphleteers* or *controversialists,* most of them political and critical writers, included W. C. Wentworth (1793-1872), Robert Lowe (1811-1892), and John Dunmore Lang (1799-1878). Many writers took to writing in advocating penal reform. Alexander Maconochie (1787-1860) published his highly critical *Thoughts on Convict Management* in 1838. Caroline Chisholm (1808-1877) wrote *Female Immigration* in 1842, drawing attention to the shortcomings of the existing system of immigration.

Early Descriptive Prose informed eager readers both overseas and in Australia of new discoveries, of the vast areas of new land being opened up, and of the new society that was being formed to meet Australian conditions. One of the most important early books of description was Alexander Harris's *Settlers and Convicts,* printed in 1847. Harris (1805-1874) wrote accurate observations, and reflected the rugged conditions that existed in the Australian cities and countryside. He noticed that "mateship" was already established where convict and settler lived and worked together. Both Harris and Charles Rowcroft (1781-1850), in his *Tales of the Colonies,* advised intending immigrants on the conditions they would find in Australia. Other major descriptive writers of this early period were Robert Dawson (1782-1826), P. M. Cunningham (1789-1864), and James Backhouse (1794-1869).

Important forms of early descriptive writings were the explorers' journals. Often, the settlers, in seeking out new land for their livelihood, were explorers themselves. Others were content to wait for expeditions to explore the unknown country. They eagerly awaited explorers' reports. The most important of these journals were those of Charles Sturt (1795-1869), whose sense of selection made his books vivid and interesting to many readers. Other explorers, such as Sir Thomas Mitchell (1792-1855), Sir George Grey (1812-1898), and Edward John Eyre

(1815-1901), also described their journeys in the form of journals that have literary merit.

The Development of the Novel was slow at first in the new country. To many people, colonial life was still only an extension of the British way of life in a new setting. They contented themselves with reading works of fiction imported from overseas. Prose fiction began in Australia with the autobiographical novel *Quintus Servinton,* written by the convict Henry Savery (1794-1842). This book was published in Hobart in 1830. Another convict, James Tucker (1808?-1866?), revealed the nature of convict conditions in *Ralph Rashleigh.* His novel was not published in its original form until 1952. Both these books possess a reality that surpasses the work of Mrs. Mary Vidal (1815-1869), the first Australian woman novelist. She published *Tales for the Bush* in 1845. John Lang (1816-1864) was the first native-born Australian novelist. His book *Botany Bay,* printed in 1859, gained for him a reputation as a leading story-teller. *Botany Bay* is a collection of popular legends and tales of the convict days.

Later novelists made considerable progress in writing about the growing colony. Novelists increasingly studied the new colonial society instead of documenting British values in a new setting. Catherine Helen Spence (1825-1910) wrote *Clara Morrison,* a study of South Australian domestic life at the time of the Victorian gold rushes. It was a novel faithfully written, without sentimentality, and with a simple description of the life she had lived and observed around her. Henry Kingsley (1830-1876), in *Geoffry Hamlyn,* wrote romantically about station life in Victoria. *Geoffry Hamlyn* still remains one of the best stories of station life ever written. It is often called the first great Australian novel. Marcus Andrew Hislop Clarke (1846-1881) was born in Britain, as was Kingsley. He wrote the Australian classic *For the Term of His Natural Life,* published in 1874. This work first appeared as a serial in the magazine *Australian Journal,* but became one of the best-known books in Australian literature. Clarke constructed his story about convict life in Tasmania in the early 1800s from historical records. Rolf Boldrewood (the pen-name of Thomas Browne [1826-1915]) wrote another Australian classic, *Robbery Under Arms,* published in 1888. Out of this novel came one of Australia's best-known literary characters, the bushranger Captain Starlight. Boldrewood had been a gold commissioner and a police magistrate on the gold-fields of New South Wales, and wrote factually of the life he knew well.

Many writers became sensitive to the cultural and social differences between Britain and colonial Australia. They assumed that the British did not recognize values that they knew existed in Australia, and they resented it. Proud of being Australian, such writers as Mrs. Campbell Praed (1851-1935) tried to interpret life in Australia and contrast it to the British way of life. She wrote about 40 novels. She is best known for *Policy and Passion,* published in 1881. Other novelists of this sort were Ada Cambridge (the pen-name of Mrs. G. F. Cross [1844-1926]) and Tasma (the pen-name of Mrs. Jessie Couvreur [1848-1897]).

The Development of Poetry. Early poets were faced with the problem of fitting a new, rough society and a new, raw land into the highly developed literary traditions of poetry. Most of them felt that they were handicapped because the public had no interest in their work. Yet, by 1890, Australia had a number of leading poets, each with his own personal style of interpretation of Australia and the attitude of its people.

The earliest-known poets in Australia were the convict "poet laureate" Michael Massey Robinson (1747-1826) and the convict balladist Frank the Poet (the pen-name of Francis Macnamara [1758-1853?]). Barron Field (1786-1846), the Judge of the Supreme Court of New South Wales, wrote *First Fruits of Australian Poetry.* It was published in Sydney in 1819, and was the first book of poetry in Australia. Field's poems were formal, but foreshadowed a growing interest in Australian plants and animals. The first Australian-born writer to publish poetry was W. C. Wentworth. The first volume of poetry to be published locally by an Australian was *Wild Notes from the Lyre of a Native Minstrel,* by Charles Tompson (1806-1883). In the 1830s, Charles Harpur (1813-1868) began to emerge as a leading poet. Harpur succeeded in giving in his narrative verse his own vision of the country—its light and solitude, and its people dwarfed by the Australian landscape. Encouraged by Harpur's attempts, Henry Kendall (1839-1882) began writing lyrically about nature and its influence on man. Kendall's book *Leaves from Australian Forests* marked him as an attractive lyrical poet. Many critics regard this book as the first really Australian book of poetry.

While traditional forms of poetry persisted, more popular writers began to develop a new local form of the ballad. Adam Lindsay Gordon (1833-1870) led the way with *Bush Ballads and Galloping Rhymes* in 1870. Other poets who worked in the ballad form were Mary Hannay Foott (1846-1918) and John Farrell (1851-1904). George Gordon McCrae (1833-1927) wrote the first Australian poems of any importance that had Aboriginal themes. His two long poems, *Mamba* and *The Story of Balladeadro,* were published in Melbourne in 1867.

The Second Period (1890-1920)

In the 1890s, the Australian colonies were moving quickly towards federation, and their people were developing a language of their own that was rooted in ironic understatement and realism. Writers saw this realism as a healthy rejection of outdated romantic conventions. They became aware of the Australian identity, and rejected romance for realism in their writing. For the first time, they could write with strong and popular support throughout the country. Writer spoke to reader, sharing a common experience. He became the reader's "mate". The concept of "mateship" was spreading throughout the country.

During the 1890s, a Sydney magazine, *The Bulletin,* helped to develop a national literature. First

CHARACTERS IN AUSTRALIAN LITERATURE

Captain Starlight
The Man from Snowy River
Clara Morrison
Dawes, the Convict
Voss
Geoffry Hamlyn
Ginger Mick
The Dog on the Tucker Box
The Bunyip
The Muddle-Headed Wombat
Bluey and Curley
CRETE
GREECE
MALAYA
SYRIA
TOBRUK
Loveday Kennedy

printed in 1880, *The Bulletin* began with social and political journalism. It then moved on to encourage literary interpretations of Australian life. It fostered young writers, especially under such men as J. F. Archibald (1856-1919), who helped to found it and edited it until his death, and A. G. Stephens (1865-1933), who was its literary editor for many years. *The Bulletin* also invited its readers to contribute any stories and verse of Australian interest. To many Australians, here at last was a paper that used their own language and recognized their own particular way of life. Many of them agreed with the poet Francis Adams (1862-1893) when he described *The Bulletin* as "the only mouthpiece of originality in the country". The kind of story *The Bulletin* encouraged was short and belonged to the country more than the city. It particularly welcomed anecdotes from local folklore.

The Balladists. The bush ballad dominated literary forms in the 1890s. It sprang out of the early popular convict, bushranging, gold-mining, and campfire ballads. Adam Lindsay Gordon and others had already experimented in the ballad form. But the "Bulletin bards" were the first writers to sweep the bush ballad into popularity. The best-known balladists were Banjo Paterson (1864-1941) and Henry Lawson (1867-1922). Other balladists included Barcroft Boake (1866-1892), E. J. Brady (1869-1952), C. J. Dennis (1876-1938), Edward Dyson (1865-1931), Will Lawson (1876-1957), Harry Morant (1865-1902), Will Ogilvie (1869-1963), and T. E. Spencer (1845-1910). Their subjects came from the life of drovers, shearers, boundary riders, station hands, and *jackaroos* (inexperienced station hands). They wrote about experiences on farms and on sheep and cattle stations, about country towns and cities, and about travel and seafaring. Most of their poetry was good humoured, tuneful, and ironical. They had a profound influence on Australian writing. The modern revolt against the "Australian legend" that the balladists created is a measure of their widespread influence.

Of the bush balladists, Henry Lawson and Banjo Paterson were the most successful. Lawson, who also gained a reputation for his short stories, wrote ballads that demonstrated his convictions about the quality of the young Australian nation and the struggle of its people. Paterson's picture of country life was quite distinct from Lawson's. Paterson had a sometimes quiet, sometimes farcical, humour, and wrote with deep insight on country life as he knew it. Besides the song "Waltzing Matilda", his best-known ballads are "Clancy of the Overflow", and "The Man from Snowy River". C. J. Dennis gained great popularity with his poems, especially *Songs of a Sentimental Bloke*. He used *larrikin* language with great humour in this book. Dennis also used the same "local" language, combined with his own brand of humour, in his other books, *Ginger Mick, The Glugs of Gosh,* and *A Book for Kids*. Barcroft Boake identified himself with the experiences of bush workers, and wrote several powerful ballads using them as his theme.

Some of the lyrical poets of the 1890s also reflected strong nationalistic themes in their occasional political and social poems. Among them were James Brunton Stephens (1835-1902), George Essex Evans (1863-1909), and Creeve Roe (the pen-name of Victor Daley [1858-1905]).

Short Stories of the Countryside, along with the bush ballad, developed distinctly Australian folklore themes. Henry Lawson, in his short stories, observed life in a country "where people toil and bake and suffer and are kind; where every second sunburnt bushman is a sympathetic humorist." Among his famous stories are "The Union Buries Its Dead", "The Drover's Wife", and the folklore anecdote "The Loaded Dog". Edward Dyson published collections of stories in *Below and On Top* and *Fact'ry 'Ands*. Steele Rudd (the pen-name of A. H. Davis [1868-1935]), studied the small farmer, especially his own family, who, although desperately poor and farming by makeshift methods, remained undefeated by the land. Rudd's many books include *On Our Selection* and *Our New Selection*. Price Warung (the pen-name of William Astley [1855-1911]), in protest against the inhumanity of the convict system, wrote a lengthy series of stories, beginning with *Tales of the Convict System*. Louis Becke (1855-1913) wrote yarns of Pacific islands in his book *By Reef and Palm*. Other short-story writers included Barbara Baynton (1862-1929), Albert Dorrington (1871-1953), Ernest Favenc (1845-1908), and Mrs. Langloh Parker (1855-1940), who retold Aboriginal myths and legends.

Country Novelists, like the bush balladists and the short-story writers, belonged mainly to *The Bulletin* school of writing, and were, as one critic humorously wrote, "offensively Australian". Joseph Furphy (1843-1912) was outstanding among the novelists. He wrote *Such Is Life,* the original manuscript of which contained two other well-known books—*Rigby's Romance* and *The Buln Buln and The Brolga. Such Is Life* consists of extracts from the diary of Tom Collins for the year 1883. The book is full of local colour about the Riverina district of south-eastern Australia. Furphy used "Tom Collins" as his pen-name in his novels.

Early pioneering and land settlement also fascinated two women writers of this period—Miles Franklin (1879-1954) and Mrs. Aeneas Gunn (1870-1961). Miss Franklin's *My Brilliant Career* is a study of adolescent frustrations in a pioneering bush society. Later, she paid homage to the pioneers in *All That Swagger* and in her Brent of Bin Bin novels, set in the Monaro district. Mrs. Aeneas Gunn described her outback pioneering experiences in *We of the Never Never*.

While other writers continued to write novels in the bush ballad tradition, Henry Handel Richardson (the pen-name of Mrs. E. F. Robertson [1870-1946]) began writing about the countryside from a more detached and sophisticated viewpoint. She was born in Melbourne, and was the daughter of an impoverished Irish doctor who had migrated to Australia in the hope of finding gold. In 1930, her trilogy *The Fortunes of Richard Mahony* came into print as a whole. The story depicts the life of Richard Mahony, who

gave up his practice of medicine to seek his fortune on the gold-fields of Victoria. One part of the book is set in Britain. It is almost certain that, in Richard Mahony, she presents a character study of her father, who loved both the European and the Australian ways of life, and whose longings were divided between the two. Her writing was far away from *The Bulletin* style with its "cheeky nationalism". The book made her one of Australia's leading novelists.

Later Novelists. In the period of expansion that followed federation, the differences between country and city life dwindled. More and more people shifted into the city. The working class, no longer mainly rural workers, became more and more the industrial workers of big towns.

Louis Stone (1871-1935) lived for many years in the eastern suburbs of Sydney, and wrote his novel *Jonah* in this setting. *Jonah* is the story of the leader of a larrikin gang in Sydney who rose from the slums to big business. Stone, with his realistic approach to the larrikin, continued the outlook of *The Bulletin* school of writing. But William Gosse Hay (1875-1945), in his powerful novel of the convict period *The Escape of Sir William Heans,* pioneered the more modern approach to the novel.

Later Poets. During the 1890s, some poets were experimenting with their own styles outside the bush ballad influence. The major poet of this kind was Christopher Brennan (1870-1932), who wrote much of his poetry at the time the bush ballad was developing. Brennan worked under the influence of Swinburne, and later of the French symbolists Baudelaire and Mallarmé (see BAUDELAIRE, CHARLES, and MALLARMÉ, STÉPHANE, in the main volumes). He was a worshipper of beauty and a symbolist who believed that all worldly objects are images of the spiritual world. In his *Poems,* he used symbols in his search for the ideal of peace and harmony that he considered lay behind all material things.

Other poets wrote lyrical verse outside the bush ballad school. Hugh McCrae (1876-1958) used the settings of Greece and the Middle Ages instead of the local scene in his *Satyrs and Sunlight.* Shaw Neilson (1872-1942) sang of "the black season" of death and "the folly of spring" in his books of lyrical poetry, such as *Old Granny Sullivan* and *Heart of Spring.*

Another group of writers revolted against the inadequacy of society in highly critical poems. The foremost of these writers were Francis Adams (1862-1893), William Baylebridge (1883-1942), and Bernard O'Dowd (1866-1953). Francis Adams was a young man with a social conscience and a flair for invective. He was a fiery political poet, and became known for the angry revolutionary pleas in his book of verse, *Songs of the Army of the Night.* In his *Selected Poems,* William Baylebridge advocated a form of society in which individuals were less important than their political value. Bernard O'Dowd, in his *Poetry Militant,* wrote "the real poet must be an Answerer . . . of the real questions of his age." O'Dowd considered that growing Australia would one day show the world that true democracy was socialism. He used allusion and mythology in his efforts to realize his political ideals. His most widely known books of verse are *The Bush* and *Alma Venus.*

Dame Mary Gilmore (1865-1962) wrote poetry with a warm human feeling for the underprivileged, the common man, and the Aborigine. Her two best-known poems, *The Myall in Prison* and *Old Botany Bay,* are sensitive studies of Aborigines who were driven from their hunting-grounds, and of convicts who helped to pioneer Australia. Many critics consider that Dame Mary Gilmore was one of the leading poets in the history of Australian literature.

Little Australian poetry came from World War I. Furnley Maurice (the pen-name of Frank Wilmot [1881-1942]) wrote *To God: From the Warring Nations,* confessing man's guilt and self-betrayal in war. Leon Gellert (1892-) wrote sonnets and short poems that were moving and unsentimental descriptions of his war experiences. Other works were *A Wreath,* by William Baylebridge; *Elegy on an Australian Schoolboy,* by Zora Cross; and *Vintage,* by Harley Matthews (1889-1968).

The Third Period (1920-)

After World War I, such overseas writers as T. S. Eliot and James Joyce opened up new approaches to literature and languages (see ELIOT, T. S., and JOYCE, JAMES, in the main volumes). The studies of Sigmund Freud pointed to exploration of the human personality (see FREUD, SIGMUND, in the main volumes). With the traditions of nearly a hundred years of writing behind them, and with Australia's growing prestige, Australian writers became less sensitive of working in a cultural fringe. They could afford to be less occupied with the concept of "mateship" and "cheeky nationalism", and could explore their environment without self-consciousness.

The Novel. Novelists of the 1920s and 1930s set out to re-examine Australian history and environment. Miles Franklin (1879-1954), in her well-known book *All That Swagger,* vividly described Danny Delacy's pioneering struggles towards squatter status for himself and for generations of his family. In her Brent of Bin Bin novels, especially *Up the Country,* Miss Franklin gives a carefully documented social history of a pastoral community. Brian Penton (1904-1951), in *Landtakers* and *Inheritors,* gives realistic sagas of early settlement. M. Barnard Eldershaw (the pen-name of Marjorie Barnard [1897-] and Flora Eldershaw [1897-1956]), wrote *A House Is Built,* a psychological study of the Hyde family against the rapid growth of Sydney in the 1800s. Martin Boyd (1893-1972), in his humorous novel *The Montforts,* tells of a Victorian family whose ancestors migrated from Britain in the pioneering days.

Katharine Susannah Prichard (1883-1969) began writing about how environments shaped the lives of people. She shows her characters as extensions of the society in which they live in such books as *Black Opal, Working Bullocks,* and *Haxby's Circus. Coonardoo,* her best-known novel, deals with the Aborigines, as do many of her short stories. *Working Bullocks* is a study of people in the karri timber country of south-western Western Australia. *Haxby's Circus* describes the world of a small, family-owned

travelling circus. Vance Palmer (1885-1959) also established character in terms of environment. His main character studies were of ordinary men. Human life and the sea intermingle in the study of the Callaway family in his *The Passage* and in his *Golconda* trilogy. Xavier Herbert (1901-) gained a major reputation when he wrote *Capricornia.* It is a tragicomic and indignant story of a part-Aboriginal boy struggling to find self-dignity in Northern Territory society. Eleanor Dark (1901-) extended both the saga and the purely historical novel. In her trilogy *The Timeless Land, Storm of Time,* and *No Barrier,* the first settlement of New South Wales is the centre of her study. Mrs. Dark recreates past life and times in her trilogy, and adds characterization and imagination to the purely historical material.

Service in World Wars I and II led writers to take stock of their experiences and the society in which they lived. A novel by Leonard Mann (1895-), *Flesh in Armour,* was published in 1932, and became the major novel of World War I. Both William Baylebridge and Harley Matthews wrote short stories about World War I incidents and characters. Leading World War II novelists included Lawson Glassop (1913-1966), who wrote *We Were the Rats;* John Hetherington (1907-); Eric Lambert (1921-), who wrote *Twenty Thousand Thieves;* and Tom Hungerford (1915-). In *The Little Company,* Eleanor Dark examines Australian intellectual life during the war through her main characters, the Massey family.

Social analysis became more intense and probing after the effects of the Depression and World War II. Kylie Tennant (1912-) employed the picaresque method of writing in her highly humorous books concerning life in the country, the small town, and the city. Her best-known work, concerning the wanderings of vagabonds, is *The Battlers.* Another novelist, Eve Langley (1908-), used the picaresque method in her prize-winning book *The Pea Pickers.* Christina Stead (1902-) writes powerful, intense novels that analyse character. Patrick White (1912-) and Morris West (1916-) emerged as leading novelists after World War II. White, in *Voss* and *Riders in the Chariot,* concerned himself with the isolation of man and the search, often tormented, for spiritual values. West, a more popular writer, deals with religious and political themes of urgent, world-wide importance in such novels as *The Devil's Advocate* and *The Ambassador.*

Other recent novelists include Thea Astley (1925-), Elizabeth Harrower (1928-), Thomas Keneally (1935-), Christopher Koch (1933-), David Martin (1915-), Hal Porter (1917-), and Randolph Stow (1935-).

The short story developed with similar vitality and experimentation. Vance Palmer developed the character-sketch form of writing in his four volumes of short stories. Frank Dalby Davison (1893-1970) used similar artistry in his story *The Woman at the Mill,* which is about small towns and their closely settled environs. Country towns are also the theme of Brian James (the pen-name of J. L. Tierney [1892-]). Gavin Casey presents short studies of life and disillusionment in a gold-mining town during the Depression. He wrote the well-known short story "Short Shift Saturday". Ethel Anderson (1883-1958) developed a new form of short story with her retelling of Australian history. Dal Stivens (1911-) developed the fantasy form of short story. Judah Waten (1911-), in his collection *Alien Son,* deals with the problem of migrant assimilation. John Morrison (1904-) reflects water-front life. Henrietta Drake-Brockman (1901-1968) and Roland Robinson (1913-) illuminate the problems facing a multiracial society. Other short-story writers include Cecil Mann (1896-), Ray Mathew (1929-), R. S. Porteus (1896-1963), and Patrick White.

Poetry. In poetry, the bush ballad lost much of its popularity after World War I, although some poets continued its spirit in deeper and more lyrical form. Christopher Brennan, the symbolist, and Hugh McCrae, the lyricist, had already extended the boundaries of poetry writing. In the early 1920s, the journal *Vision* immediately focused attention on a new wave of poets. Kenneth Slessor (1901-) was foremost in bringing modernity into Australian poetry. Slessor is a romantic whose early poetry romps through an exotic world of pagan gods, rascals, and gay young wenches. His later poems, "Five Visions of Captain Cook", "Five Bells", and "Beach Burial", are full of poetic images and melody that remain unequalled in Australian poetry. R. D. FitzGerald (1902-) shares with Slessor an interest in navigators and Australian history, but is basically concerned with the nature of man's existence. In his prize-winning poem *Essay in Memory,* FitzGerald contemplates the influence of the past on the present with closely connected images. Judith Wright (1915-) has a strong feeling for the land and Australia's past. Her books show a richness of language and close connexions between subject-matter and idea. She deals with feminine love and its fruition in one of her best-known books, *Woman to Man.* Alec Derwent Hope (1907-) is a master of sensitive lyrics and satire. Hope writes about the nature of man, his disillusionments, and his possibilities. James McAuley (1917-) writes poems in a classical style. Many of his best poems, such as *Philoctetes* and *Terra Australis,* are historical poems that endeavour to express "the landscape of the heart".

Other Australian poets who are known both at home and abroad are Douglas Stewart (1913-), the poet and playwright, known for his verse plays *The Fire on the Snow* and *Ned Kelly;* Rosemary Dobson (1920-); David Campbell (1916-); Francis Webb (1925-); Vincent Buckley (1925-); W. Hart-Smith (1911-); Kenneth Mackenzie (1913-1955); and Randolph Stow.

During the early 1940s, two poetry movements sprang up in Adelaide almost at the same time. They were the *Angry Penguins* movement and the *Jindyworobak* movement. The poet Max Harris (1921-) led the Angry Penguins movement, which wanted to inject internationalism into Australian poetry by using surrealism (see SURREALISM in the main volumes). His group was the victim of a

hoax by the poets James McAuley and Harold Stewart (1916-). The two poets wanted to test the literary value of the surrealist movement. Using the pen-name Ern Malley, they wrote a series of poems that had no coherent meaning or structure. The Angry Penguins hailed the poems as works of genius, and eventually published them. In the public ridicule that followed, the movement broke up.

The earlier Australian nationalism of *The Bulletin* school found an extension in the Jindyworobak movement. *Jindyworobak* is an Aboriginal word meaning *to annex* or *to join*. The movement's founder, Rex Ingamells (1913-1955), believed that Australian culture must be based upon an understanding of Australian history and tradition, including those of the Aborigines. The poets of this movement sought symbols and allusions from Aboriginal culture. Foremost among them was Roland Robinson, who wrote *Tumult of the Swans* and *Deep Well*. Robinson collected Aboriginal tales in *Legend and Dreaming* and *Black-feller, White-feller*.

Literary Awards

The most important awards available for Australian writers are the annual *Britannica Australia Award* and the *Miles Franklin Literary Award*. A committee of academic and literary people awards the Britannica Australia Award of $A 10,000 to the author of the best Australian literary work or one of benefit to Australia. The prize, started in 1964, may be awarded for a published work of fiction, non-fiction, poetry, or plays. Under the terms of Miss Franklin's will, each year a panel of judges awards the Miles Franklin Literary Award of $A 1,000 for the best Australian novel published during that year. The *Grace Leven Poetry Prize,* given under the will of William Baylebridge, is an annual award for the best volume of poetry. The Children's Book Council of Australia grants medal awards for the best children's book and the best children's picture-book of the year. The *Mary Gilmore Award* is awarded annually by a committee of trade unionists for a novel, short story, book of poetry, or children's book that shows the life and aspirations of the Australian people. The Australian Journalists' Club makes an annual award for a given type of work each year. In 1962-1963, this award was for a stage play; in 1963-1964, for a novel; and in 1964-1965, for a biography. *The Transfield Book Production Award* is an annual award for books wholly published and printed in Australia. Many universities have their own literary awards. For example, Stanford University, of Palo Alto, California, in the United States, offers writing scholarships to young Australians. Some prizes are awarded in connexion with local festivals and eisteddfods, such as the Melbourne Moomba Festival and the Henry Lawson Festival at Grenfell, in New South Wales. The Adelaide *Advertiser,* as a contribution to the Adelaide Arts Festival, has offered prizes of $A 4,000 for literary works.

The Commonwealth Literary Fund, established in 1908, grants literary pensions to distinguished authors or their widows and orphans. Over the years, these pensions and the activities of the fund have expanded. Each year it offers grants of as much as $A 4,000 to a number of writers to assist them in bringing a specified work to completion during the following year. The fund subsidizes the publication of selected books by guaranteeing their publishers against loss. It also assists the publicaton of approved literary magazines and makes grants to universities for annual lectures in Australian literature. A committee of the federal parliament administers the Commonwealth Literary Fund. An advisory board of five scholars and writers advises the committee on how the money should be spent. The government also administers the *Winston Churchill Award*. This award, worth $A 10,000, is given every two years for an original work on any aspect of the history of the English-speaking peoples.

Aids to Learning

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Outline of this article is as follows:

I. **The First Period (1789-1890)**
   A. The Earliest Writers
   B. Early Descriptive Prose
   C. The Development of the Novel
   D. The Development of Poetry
II. **The Second Period (1890-1920)**
   A. The Balladists
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   D. Later Novelists
   E. Later Poets
III. **The Third Period (1920-)**
   A. The Novel
   B. Poetry
IV. **Literary Awards**

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LITERATURE OF INDONESIA

LITERATURE OF INDONESIA exists in several main languages and forms. Traditional Malay literature is one of the most important forms. Modern Indonesian literature is written in *Bahasa Indonesia,* the national language of the country, which is based on the Malay language. Javanese literature, written in the Javanese language, is the most important literature written in any of the other local languages used by the peoples of Indonesia.

Languages

Indonesia has more than 250 distinct languages, and hundreds of dialects. Many of them have their own literatures. Some of the literatures are primitive. Others, such as the Balinese, Sundanese, and Minangkabau literatures, are highly developed.

The Indonesian language stems from the Malay language, spoken by the people of central and northern Sumatra, the Malay Peninsula, and nearby islands. Only about 8 million Indonesians speak Malay, compared with more than 40 million who speak Javanese and about 18 million who speak Sundanese. But Indonesian has become the national language of more than 100 million people.

For hundreds of years, traders used the Malay language as a *lingua franca* (common language). It was the cultural language of Islam throughout the Indonesian archipelago. People living in a remarkably wide area can speak it. For this reason, the government of Indonesia chose it as a national language after the proclamation of independence in 1945.

Malay is simpler than Javanese or Sundanese. It does not have the rather complicated systems of *ranks* that are characteristic of these languages. People speaking Javanese or Sundanese must use ranks when addressing people of other ages or classes. The lack of such a system in Malay also makes Malay appear a more democratic language.

Bahasa Indonesia differs markedly from the Malay used in Malaysia today because different influences have affected the two forms. The two forms differ mainly in their vocabulary but they also differ slightly in structure. English has strongly influenced modern Malay. Dutch and regional languages such as Javanese and Sundanese have exerted a stronger influence on Bahasa Indonesia.

Malay and Indonesian used to differ in spelling. For example, the word for king was spelt *raja* in Malay and *radja* in Indonesian. Spelling changes have eliminated many of these differences.

Traditional Malay Literature

Scholars divide traditional Malay literature into two categories. The first category includes the local literature of the people of Indonesia. Each generation passed it on to the next generation by word of mouth. The content of most traditional Malay poetry is also of local origin. The second category includes literature influenced by the literatures of other countries.

Local Literature includes humorous tales about foolish people. It also includes tales that were usually told by story-tellers. These tales, called *penglipur lara,* were designed to entertain the listeners and make them forget their daily sorrows. Many historical stories are of local origin.

Historical romances tell stories based on history. The oldest of them is the *Hikayat Raja-Raja Pasai* (*The Story of the Kings of Pasai*). It tells about the spread of Islam in Pasai, in northern Sumatra, between A.D. 1275 and 1375. It was written towards the end of the 1300s.

The best-known historical story is the *Sejarah Melayu* (*Malay Annals*). It is an adaptation of *Hikayat Melayu* by Tun Sri Lanang, who is also called Tun Muhammad. Unlike other annals, *Sejarah Melayu* is not confined to local history. It also portrays the kingdom of Malacca in relation to south-eastern Asia. According to a story in the *Sejarah Melayu,* the Malay kings were descendants of Alexander the Great of Macedonia. The story runs that, after Alexander conquered Persia in the 300s B.C., he invaded India and overcame King Kida Hindi, who reigned in the Indus Valley. The defeated king had to offer his daughter Syarul-Bariyah in marriage to the conqueror. Alexander married the beautiful princess. According to the story, the rulers of Malacca were descended from Alexander and Syarul-Bariyah.

The *Hikayat Hang Tuah* (*Story of Hang Tuah*) is a well-written historical romance. The main hero is Hang Tuah, an admiral who fought against the fleet of the Majapahit empire and equally successfully against the Portuguese fleet during the 1500s. The theme of the story is the hero's loyalty to the King of Malacca. See HANG TUAH in this volume.

Outside Influences. For a thousand years, the Malays were under the influence of Hindu culture from India. They adopted the Indian scripts called *Pallavan* and *Nagari.* But nothing remains of Malay literature in Indian scripts. Later, other influences reached Indonesia. Scholars classify these influences into four main groups.

Hindu Influences came mainly through Old Javanese adaptations from the great Hindu epics, the *Mahabharata* and the *Ramayana.* See the section *Literature of East Java* later in this article.

Javanese Influences are seen in many stories adapted from local Javanese literature. The Javanese Panji cycle of stories are the most important (see the section *Literature of East Java* later in this article). These adaptations probably date from the second half of the 1300s.

Arab, Persian, and Islamic Influences. Malacca was converted to Islam at the beginning of the 1400s. The religion eventually spread through most of the Indonesian archipelago. It, and the Arabs and Persians who introduced it, influenced four main types of writing.

The first type of literature in this group includes historical romances about pre-Islamic heroes such as Alexander the Great. He is called *Iskandar Zulkarnain* and is portrayed as a Muslim hero. Other stories concern Jesus Christ and prophets such as Abraham and Moses.

The second type consists of historical romances connected with the introduction and spread of

Islam. These historical romances include stories about Muhammad himself, about his friends and disciples, and about Muslim saints and heroes.

The third type consists of four cycles of tales of world-wide fame. *Hikayat Bayan Budiman* (*Tales of a Wise Parrot*) is an adaptation from Persian stories that in turn originated from Sanskrit stories. *Hikayat Kalilah dan Daminah* (*Tales of Kalilah and Daminah*) also came originally from Sanskrit. Stories called the *Bachtiar cycle* and the stories of *The Thousand and One Nights* are the other two cycles (see ARABIAN NIGHTS in the main volumes).

The fourth type consists of translations, usually of works on Islamic beliefs, mysticism, and law. *Tay al-Salatin* is a book of morality translated from Persian in 1603.

Samsudin of Pasai (? -1630) was one of the most famous Malay writers on Islam. He believed that only God was real and that man was His puppet. Hamzah Fansuri of Barus, another Sumatran, lived at the same time as Samsudin. His verses made him the greatest literary figure among Malay religious writers. Syech Nuruddin al-Raniri was one of the most distinguished thinkers who wrote in Malay.

Western Influences appear in the work of only one traditional author, Munshi Abdullah bin Abdul Kadir (1796-1856). He was the first author to write about events that happened during his own lifetime. He did so in an autobiographical novel, *Hikayat Abdullah,* and in books about his travels. But, after his death, no other authors wrote in this way until modern times.

Poetry includes proverbs, riddles, maxims, and incantations. They are extremely melodious and rhythmical. The pantun, shaer, and gurindam are typical forms of verse.

Most *pantuns* have four lines. The first and third lines rhyme, as do the second and fourth. In most pantuns, the rhyming lines are in *assonance* with each other (see POETRY [table, Terms Used in Poetry] in the main volumes).

In the pantun, the connexion between the meaning of the first two lines and the meaning of the second two lines is not always clear. Some scholars say that the first two lines should veil the beauty of the poetic thought. The last two lines should present the same thought with its beauty unveiled. But, in many pantuns, the two parts seem to have no connexion at all. Many pantuns are extremely beautiful and give evidence of the great love that the Malays have for nature.

Here is an example of a formally perfect pantun:

Dari mana datangnya lintah,
Dari sawah turun kekali;
Dari mana datangnya cinta,
Dari mata turun kehati.

From where the leech has come,
Through the rice field into the stream;
From where my love has come,
Through the eyes penetrating into my frame.

The *shaer* form is used to relate stories more than the pantun form. Most shaer *stanzas* (groups of lines) have four lines, all of which rhyme. Many of the stories in the prose form, *hikayat,* have poetical versions in shaer form. The oldest shaer that has been found is on a tombstone of a princess of Pasai. It is dated about 1380.

The *gurindam* has two rhyming lines. The first line gives a condition and the second line a result. For example:

Apabila perkataan yang amat kasar,
Lekaslah sekalian orang menjadi gusar.

If you sow rudeness,
Anger you will harvest.

The best-known writer of gurindams, Raja Ali Haji of Riouw, wrote during the 1800s.

Javanese Literature

Each generation handed down early Javanese literature to the next generation by word of mouth. After the arrival of Hindu traders from India, the Javanese adopted the Pali script of southern India. The present Javanese characters developed from this script.

Scholars divide the written literature into three main periods. The early period of the literature of Central Java lasted from about 750 to 950. The period of the literature of East Java lasted from about 1000 to 1500. The late period of the literature of Central Java began about 1600.

Early Literature of Central Java developed when the Sailendra kings ruled over a Hindu-Javanese kingdom in the area. Central Java had a highly developed culture at this time. But documents on stone or metal plates are the only writings that have survived. They are simply records that deal with such things as grants of land and privileges. They have no literary value.

Literature of East Java. More evidence of literary work survives from this period, when the kingdoms of Kediri, Singosari, and Majapahit flourished. Hindu literature greatly influenced Javanese literature at this time. Books were written in *Kawi,* the old Javanese language. This language is basically Javanese. But it contains many words taken from ancient Sanskrit. Many of the stories are still used for *wayang* (shadow puppet) performances.

These books have prose adaptations from the great Hindu epics the *Mahabharata* and *Ramayana* (see MAHABHARATA and RAMAYANA in the main volumes). One of them is called *Adiparwa.* It is an adaptation of the first part of the *Mahabharata.* An example of an adaptation of the *Ramayana* is *Utarakanda.* This adaptation also contains an account of the arrival of *raksasas* (giants), of the birth of a king of the giants, Dasamuka, and of his hostile attitude towards the gods and saints.

Poetry is composed in an Indian verse form, *tembang gedé.* The books are called *kakawins.* The stories of the kakawins are also adaptations from the *Mahabharata* and *Ramayana.* The most famous are the kakawins *Arjunawiwaha, Smaradahana, Bharatayudda,* and *Nagarakertagama.*

The *Arjunawiwaha* was written by Mpu Kanwa, who served under King Airlangga (1019-1042) of East Java. It tells how Arjuna kills a demon that threatens the gods. The *Smaradahana* was composed by Mpu Darmaja during the reign of Kameswara (1115-1130), a king of Kediri. This kakawin is also about the gods being disturbed and threatened. This time another king of the giants, Nilarudraka, threatens them. The most famous kakawin is *Bharatayudda,* written towards the second half of the 1100s. It tells about the great war between the Pandawas and the Korawas, two families of gods. The story seemed to be too moving for Mpu Sedah, its author. He began it in 1157 but could not finish it. The writing was carried further by another poet, Mpu Panuluh.

The *Nagarakertagama* is a source for the study of history, social structure, religion, law, and court life during the 1300s. The poet Prapanca wrote it in 1365 to glorify King Hayam Wuruk, who reigned from 1350 to 1389.

During this period, the Javanese language reached a stage of development that some scholars call *middle Javanese.* It was a stage between old Javanese and present-day Javanese. Books of prose in middle Javanese include *Tantu Panggelaran,* which tells of the early times of Java. Batara Guru (Siva) orders the gods to move Mt. Semeru from India to Java and to pin Java fast in its place (see JAVA [Land Features] in this volume).

The story called *Tantri Kamandaka* is an adaptation of the famous Indian *Panchatantra,* a collection of stories about beasts. It tells the story of a king who marries a different girl every night. Finally, only Tantri is left. She tells the king stories, each with a moral, and makes him see the error of his ways.

The story called *Pararaton* is valuable as a source for the study of East Java's history. It deals with the kings of the region. Part of it covers the story of Ken Angrok, the founder of the dynasty of Singosari and Majapahit. He came to the throne in 1222.

About the same time, a new form of verse, called *macapat,* emerged. It was written in the Hindu verse form, but it did not follow the Hindu rules so strictly. Verses of this type include *Dewaruci,* which tells about the meeting of Bima and Dewaruci, two legendary characters. They meet at the bottom of the sea, as Bima is searching for the water of life.

Other new works were written in a verse form called *kidung.* Some of them drew their subject matter from the Panji cycle. These romances tell about the love of Raden Panji, a prince of Koripan, for a princess of Kediri. They include tales of his adventures in search of her after she has been kidnapped. A famous kidung is *Sundayana.* This story tells how a Sundanese princess from West Java kills herself rather than become a bride of King Hayam Wuruk of Majapahit.

Later Literature of Central Java. After the empire of Majapahit fell, Muslim kingdoms arose. With them, Islamic literature started to spread in Java. The Javanese adopted more Arabic words and used them in writings. The *Book of Bonang* is in prose form. It contains material about Islam. Other books of this kind include *Suluk Sukarsa,* a mystical work. The *Menak* stories relate the heroic adventures of Amir Hamzah, an uncle of the Prophet Muhammad. In the Javanese version, the hero is called *Wong Agung* (great man). The oldest text of this cycle dates from 1639, during the reign of Pakubuwono I as ruler of Kartasura.

Other works during this period include *Kitab Kanda,* a book that tells both Javanese and Islamic stories. The *Kitab Ambia* is a book of the life stories of prophets. *Cientini* is a sort of encyclopedia. It gives an account of such matters as Islamic teachings, sciences, music, dancing, cooking, astrology, songs, and humour, and tells various tales.

Modern Literature

Literature in the Indonesian language developed with the growth of an Indonesian national consciousness. Writers began to produce works that were personal creations instead of anonymous parts of the traditional way of life. Realism developed in novels, short stories, and plays.

Early Modern Literature emerged about the beginning of the 1920s. In 1917, the Dutch colonial government established a publishing house called *Balai Pustaka* (hall of books). It published translations of western literature, which began to influence Indonesian literature. The first Indonesian novels that Balai Pustaka published dealt mostly with *adat* (tradition). The authors felt that adat was outmoded because it restricted the freedom of the individual. The subject of many stories was marriage arranged by the families. Merari Siregar's novel *Azab dan Sengsara* (*Punishment and Misery*), published in 1920, was the first of this type.

Other themes that authors chose included conflicts between generations, between western and eastern education, and between a materialistic and a more austere way of life. The three novels of this type that are most popular and are considered the best are *Siti Noerbaya* (1922) by Marah Rusli, *Asmara Dyaya* (*Successful Love,* 1927) by Adinegoro, and *Salah Asuhan* (*Wrong Upbringing,* 1928) by Abdul Muis.

During this period, poets started to use the sonnet and other western forms of poetry, breaking away from traditional verse forms. In 1922, the first collection of modern poems in Indonesian, then still called Malay, appeared. It was Muhammad Yamin's collection entitled *Tanah Air* (*Fatherland*). By *fatherland* he meant his own home, the island of Sumatra. In 1929, Yamin reflected the growth of Indonesian nationalism when he published another collection of poems and called it *Indonesia Tumpah Darahku* (*Indonesia, My Native Land*).

One of the first dramas to be written in Indonesian was *Bebasari* (1928) by R. Effendi. It was in verse. It portrayed in a symbolic way the struggle of the Indonesian people against colonialism. The Dutch banned this book.

In 1928, S. Pane published two plays, *Airlangga,* about the East Javanese king who lived during the

1200s, and *Eenzame Garoedavlucht* (*A Lonely Flight of the Garuda*). He wrote these plays in Dutch, but they are nationalistic in mood. In their nationalism and romanticism, they are characteristic of the writing of the period. They show a longing for the greatness of a glorious past or look forward to a similarly glorious future. Later, the same writer published plays in the same mood in Indonesian. These plays include *Kertadjaja,* about another king of East Java of the 1200s.

Pujangga Baru Period. The first Indonesian literary magazine, *Pujangga Baru* (*New Writers and Poets*), was published in July, 1933. It appeared in Jakarta, a city where East and West met. It published the works of a literary movement led by S. T. Alisyahbana, Armijn Pane, and Amir Hamzah. It was strongly inspired by the Dutch romantic literary movement of the 1880s. Like the Dutch movement, it claimed originality and individuality in its writings. But, unlike the Dutch writers, the Indonesian ones rejected the attitude that art was worthwhile for its own sake.

The magazine had only a small number of readers. But it had an important influence among writers and intellectuals. Authors wrote profoundly not only on literary themes, but also on cultural problems in the broader sense, such as the meeting of East and West.

The magazine lasted nine years, until the Japanese occupation forces stopped its publication in 1942. It published the work of more than 125 writers, including notable scholars such as Husein Jayadiningrat and Poerbacaraka. The magazine gave special emphasis to poetry and critical essays. It devoted several issues to the publication of entire volumes of poetry and also to complete plays. It published little fiction. The only novel published in the magazine appeared in special issues. The novel was Armijn Pane's *Belenggu* (*Shackles*), a psychological study of the growing tension between a doctor, his frivolous wife, and another woman.

Meanwhile, Balai Pustaka continued to publish novels. The best was S. T. Alisyahbana's *Layar Terkembang* (*With Spread Sails*), published in 1936. Its theme is a man's struggle to improve his society through social reforms.

Other writers and poets gathered around other magazines based on Egyptian and Islamic culture. Most outstanding among these writers was H. A. M. K. Amrullah, who used the pen-name Hamka. His most popular short novel, *Dibawah Lindungan Ka'bah* (*Under Protection of the Ka'bah*), appeared in 1936.

Japanese Period. When the Japanese occupied the islands of Indonesia during World War II, they refused to allow freedom of expression in writing. Writers had to do their work in secret. The Japanese occupation forces established the *Pusat Kebudayaan* (centre of culture) to carry out propaganda for their side in the war. The centre published a journal called *Kebudayaan Timur* (*Eastern Culture*). This period is extremely important, because for the first time the Indonesian language was acknowledged as an official language. Use of the Dutch language was prohibited.

After Independence, in 1945, Indonesian writers enjoyed practically unlimited freedom of expression. A new generation of writers and poets emerged. Most of them were more critical and realistic than the Pudyangga Baru and Balai Pustaka writers, who had been basically romantic. The new writers called themselves *Angkatan '45* (Generation of '45). Three outstanding poets, Chairil Anwar, Asrul Sani, and Rivai Apin, founded the group. Together with Pramudya Ananta Toer, Sitor Situmorang, and other writers, they gathered around *Gelanggang* (*Arena*), a literary and cultural section of a magazine called *Siasul.*

Another group of the Generation of '45 gathered around the *Lembaga Kebudayaan Rakyat* (*Lekra;* people's cultural institute). Lekra's principal cultural aim was "art for the people". It later became practically and formally part of the Indonesian Communist party. The founder of this group was the poet A. S. Dharta, who was expelled from the party in 1958.

The *Gelanggang* group soon broke up. Rivai Apin eventually joined Lekra. Pramudya Ananta Toer, the most prominent of the group, also joined Lekra. His famous, though controversial, novel *Keluarga Gerilya* (*A Guerrilla Family*) appeared in 1950. Lekra was banned in 1966 at the time the Communist party was banned.

Several writers of this period did not belong either to the *Gelanggang* group or to Lekra. Idrus, who introduced a concise style in prose, published a collection of short stories, entitled *Dari Ave Maria sampai Jalan Lain ke Roma* (*From Ave Maria to Another Road to Rome*), in 1948. M. Lubis's novel *Jalan Tak Ada Ujung* (*A Road With No End*) was published in 1950. It dealt with the impact of revolution upon a person who is at first considered a coward. He later proves to be able to withstand torture by the enemy, whereas people considered to be brave are forced to betray their friends. Achdiat published *Atheis* (*An Atheist*) in 1949. This novel depicts the psychological and intellectual reaction of a simple, religious young villager when confronted by a modern way of life and revolutionary political ideas in a big city.

Collections of plays include *Sedih dan Gembira* (*Mirth and Sorrow,* 1948) by Usmar Ismail and *Taufan diatas Asia* (*Thunderstorm over Asia,* 1949) by his brother Abu Hanifah, whose pen-name is El Hakim.

Many new young writers emerged after about 1955. Poetry and short stories were the forms of writing they chose. The works of these writers also show an interest in traditional and folk literatures of regional languages.

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LITERATURE OF MALAYSIA AND SINGAPORE

LITERATURE OF MALAYSIA AND SINGAPORE has derived its inspiration from a wide range of cultures. The first authors in the region were influenced by Indian literary and religious ideas. Hinduism and Buddhism reached Malaya from India nearly 2,000 years ago, and remained the main religions of the people for more than 1,000 years. Later, Islam became the main religion, and Malayan authors adopted some of the forms of literature that were popular in other Muslim countries. During the 1900s, Egyptian, English, and Indonesian literary ideas have all played a part in shaping modern Malaysian literature. But Malaysian writers have not simply imitated the works of writers in other countries. They have adapted them to suit the needs and tastes of their own people, and have added to them some distinctive qualities of their own.

Most Malaysian literature, both traditional and modern, is written in the Malay language. But some modern Malaysian authors write works in other languages, such as English, Chinese, and Tamil. The variety of languages reflects the variety of races that live in Malaysia and Singapore.

Traditional Malay Literature

The Oral Tradition. The earliest Malay literature consists of folk tales handed down by word of mouth from generation to generation. Some of these folk tales are probably more than 2,000 years old.

Many of the folk tales are about animals that possess almost human characteristics. They describe how small, weak animals use cunning to defeat larger but more stupid animals. The hero that appears in most Malay animal stories is the *sang kanchil* (mouse-deer), a kind of small antelope. He outwits many fierce animals, such as the crocodile, elephant, and tiger. Other folk tales are about comical human characters. There are also folk romances, based on stories borrowed from Indian or Javanese literature.

The stories of folk literature have influenced much of the traditional written literature in Malaya, and, at various times, authors have collected the folk tales and written them down. But they are mainly a spoken form of literature. Even today, many people in remote country villages in Malaya enjoy hearing professional story-tellers relate their traditional tales.

Traditional Written Prose was the literature of the royal courts of Malaya. Only the aristocrats were educated well enough to be able to read written works. Traditional Malay literature was written in Jawi, a form of Arabic script. The authors were usually *scribes* (clerks) in the courts. They wrote their stories on materials that quickly decayed, such as palm leaves, and manuscripts had to be recopied many times. The manuscripts rarely mention authors by name or the dates when they wrote. As a result, scholars have to guess the age of a manuscript from its contents. The earliest manuscripts that survive date from the 1300s and 1400s.

Most traditional Malay prose is in the form either of *hikayat* (romances) or of *sejarah* (chronicles). Some hikayat are stories adapted from Hindu epics, such as the *Mahabharata* and the *Ramayana* (see MAHABHARATA and RAMAYANA in the main volumes). Others are adapted from Javanese stories, known as the Panji stories. They relate the love of Prince Panji for a princess, and his adventures before he wins her. Later hikayat show Arab and Muslim influences. Some of them describe stories about the Prophet Muhammad. Others relate sequences of stories similar to the *Arabian Nights* (see ARABIAN NIGHTS in the main volumes).

The sejarah were historical chronicles describing the histories of kingdoms. Their authors were more concerned about honouring a particular king and his kingdom than about giving an accurate account of events. They did not mention dates, and rarely bothered to check facts. The sejarah are full of legends and folk tales. The most famous Malay history is the *Sejarah Melayu* (*Malay Chronicles*), first compiled about 1520. It describes the careers of the rulers of Johor, Malacca, and Singapore.

Traditional Poetry. The earliest form of Malay poetry is *gurindam,* a kind of rhythmic free verse. Some examples of gurindam appear in the *Hikayat Raja-Raja Pasai* (*The Story of the Kings of Pasai*). It was also used in magic rituals.

Another early kind of poetry is *shaer,* some examples of which have been found on a tombstone that dates from the 1380s. The shaer is usually a long narrative poem with stanzas that consist of four rhyming lines. The poems may tell romantic stories or deal with religious, moral, or topical subjects. The shaer is an extremely popular form of verse, and some poets were still writing shaer in the early 1900s.

A third kind of traditional poetry is *pantun.* The pantun are short poems that usually contain four lines. The first line rhymes with the third, and the second line rhymes with the fourth. The first two lines usually present a picture of some event in nature, and the second two lines carry some kind of message. Here is an example of a pantun:

Berapa tinggi putjuk pisang,
Tinggi lagi asap api.
Berapa tinggi gunung melintang,
Tinggi lagi harap kami.

However high the banana plant,
Higher yet goes the smoke.
However high mountains bar the way,
Higher yet goes my hope.

The pantun are passed on by oral tradition, and nobody knows who originally composed them. Like all forms of riddles and proverbs, they are still extremely popular among the people of Malaysia.

The Beginnings of Modern Literature

Modern Malay literature began with one man, Munshi Abdullah bin Abdul Kadir (1796-1856). His books include *Kisah Pelayaran Abdullah* (*The Story of Abdullah's Voyage*), an account of his travels published in 1838, and *Hikayat Abdullah* (*Abdullah's History*), an autobiography published in 1849. Abdullah was an Indian, but he was born in Malaya and considered himself a Malay. He knew many Europeans, and worked with them as a translator and Malay teacher. He learnt much about European ideas and culture from them. Abdullah was the

first Malay author to use a personal approach. He wrote in the first person, using colloquial language to describe his own thoughts and opinions about everyday things that he saw around him.

For many years after Abdullah died, there was little progress in Malay literature. Other authors in the 1800s, such as Raja Ali Haji of Riouw, followed a more traditional style in their works.

Modern Malay Literature

Modern Prose. In the 1920s, Malay authors began to write novels and stories about ordinary people instead of echoing traditional folk tales and legends. The new authors were well-educated men who were strongly influenced by the literatures of other countries, especially Egypt.

The first man to write a novel in Malay was Syed Sheikh Al-Hady (1867-1934). His first book, published in 1925, was *Hikayat Faridah Hanum* (*The Story of Faridah Hanum*), an adaptation of an Egyptian love story. The first Malay novel that had a Malayan setting was published two years later. It was *Kawan Benar* (*A True Friend*), by Ahmad bin Muhammad Rashid. In the 1930s, many more authors wrote novels and short stories. Most were love stories, but they emphasized the social and moral problems of the time. A few novels, such as the books of Ishak Haji Muhammad, discussed political problems and nationalism. In general, Malay writers before World War II were more interested in expressing social and political ideas than in producing great works of art.

After World War II, some writers continued to concentrate on discussing social problems. They included Ahmad Lutfi, Ishak Haji Muhammad, and Harum Muhammad Amin. But other, younger writers were influenced by the great advances in Indonesian literature during this period (see LITERATURE OF INDONESIA in this volume). In 1950, a group of young writers formed an organization called *Angkatan Sasterawan '50* (Generation of Writers of the 1950s). They began new trends in Malay literature, rejecting traditional attitudes and literary styles, and publishing their books in Roman script instead of the Jawi script used by all previous writers. The basic themes of their works were nationalism, independence, and social justice. One of the leaders of Angkatan Sasterawan '50 was Kamalludin, who used the pen-name Keris Mas. He wrote short stories, some of which were collected in *Patah Tumboh* (*Broken and Growing*), published in 1962.

The members of the Angkatan Sasterawan '50 were most active between 1950 and 1954. In the late 1950s, a new generation of writers arose. They drew their inspiration from a wide range of world literature, and especially from English literature. Unlike previous writers, they did not believe that their books had to emphasize a moral or social message to be worthwhile. One of the most outstanding of the new authors was A. Samad Said, who wrote novels, short stories, and poems. His books include *Salina,* a novel published in 1960, and *Di-tepi Jalan* (*Beside the Road*), a collection of short stories published in 1961.

Modern Poetry in Malaya did not break away from traditional forms until after World War II.

Then, poets began to write *sajak,* free verse in a modern style. They were strongly influenced by modern Indonesian poetry, and wrote mainly on the themes of independence and social justice. One of Malaysia's most famous modern poets is S. N. Masuri (1930-), a member of Angkatan Sasterawan '50. His works include *Awan Puteh* (*White Cloud*), published in 1958, and *Warna Suasana* (*Colour and Atmosphere*), published in 1962. Usman Awang, another poet of the Angkatan Sasterawan '50, used the pen-name Tongkat Waran. A selection of his poems was published under the title *Gelombang* (*Wave*) in 1961.

In the late 1950s, some poets began to use new and more abstract forms of expression. One such poet was A. Samad Said, whose collected poems were published in 1961 under the title *Liar di-Api* (*Wild in the Fire*). Some of the poetry of other modern authors, such as S. I. Noor and M. Chazali, is abstract to the point of obscurity.

Literature in Other Languages

English Literature. Many Malaysians understand English and study English literature in their schools. As a result, some modern Malaysian authors have decided to write in English. The most famous of them is the novelist Han Suyin (see HAN SUYIN in this volume). Others include Chan Kong Onn, a Chinese, and Gur Chan Singh, a Sikh. Both of them wrote popular novels in English about their experiences in World War II. Another Chinese, Ee Tiang Hong, has written many poems in English. Some of his works were published in 1960 under the title *I of the Many Faces.*

Chinese Literature is written for the millions of Malaysians whose main language is Chinese. It appears mainly in Chinese-language magazines and newspapers. The most popular literary forms are short stories and poems that deal with simple themes.

Some Chinese authors prefer to write in English, and some, such as Akhbar Goh, write in Malay, in order to encourage the use of Malay as a national language.

Tamil Literature did not develop in Malaysia until the early 1950s. Like Chinese literature, Tamil literature appears mainly in newspapers, magazines, and radio programmes. Plays, short stories, and poems are the most popular literary forms. They usually have light romantic themes, but some of them also emphasize moral and social ideas. In general, Tamil literature shows a strong affection for southern India, and seldom makes use of local Malayan settings. Outstanding Tamil authors include A. Murugaiyan and T. Navamani, who write short stories, and Barathy and Baratnydasan, who are poets.

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LITERATURE OF NEW ZEALAND has developed its own distinctive qualities only since about 1945. Most of the earliest New Zealand writers were recorders. Too many of them imitated famous British writers and described New Zealand in British terms. As a result, they missed what was unique to New Zealand. Apart from Katherine Mansfield, New Zealand writers did not find the ways of writing that suited them best until the 1930s. Then, they looked not to British writers but to American writers. But New Zealand writing did not really flourish until after World War II, when government subsidies encouraged publishers to print works by New Zealand authors.

Novels

New Zealand's early novelists found their main themes in the romance of emigration and the dangers and excitements of being pioneers. Most of them were less interested in how the pioneers really behaved than in making their plots exciting with such things as volcanoes, geysers, and bush fires. Only a few of them found the manners and customs of their country as important as the demands of melodrama.

The first New Zealand novel was *Taranaki: A Tale of the War,* by H. B. Stoney (1816-1894). This 128-page work was published in Auckland in 1861. Stoney mixed fact and fiction wildly. So did later novelists who, like him, exploited incidents from the Maori Wars.

Other novelists showed how pioneering families learnt to cope with life in New Zealand. They were following the example set in New Zealand's second novel, *Distant Homes, or The Graham Family in New Zealand* (1862), by Isabella Aylmer. This British writer had never visited New Zealand. She compiled her book from letters written home by her relatives. In 1874, Charlotte Evans (1842-1882) published two novels, *A Strange Friendship* and *Over the Hills and Far Away.* They began a tradition of light romantic fiction that has not yet died.

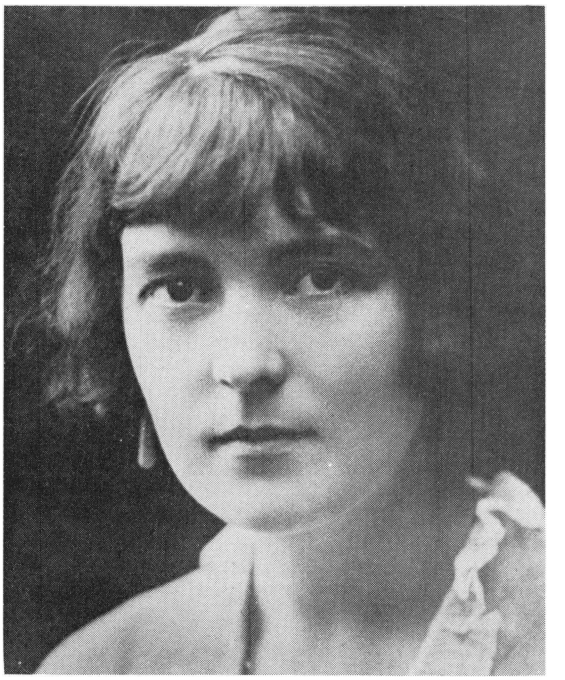
Two other novels of 1874 were *Ena, or The Ancient Maori,* by G. H. Wilson (1833-1905), and *Te Rou, or The Maori at Home,* by John White (1826-1891). They were both solemn studies of Maori life. White, a scholar, was Sir George Grey's official interpreter. He later published *The Ancient History of the Maori* in seven volumes.

Another novel from the year 1874 is *The Narrative of Edward Crewe,* by W. M. Baines (? -1912). It is an artlessly boisterous account of the experiences of a young Briton who arrives in Auckland in 1850. *Waitaruna* (1881), by Alexander Bathgate (1845-1930), tells of the contrasting fortunes of two young men in New Zealand.

The most thoughtful of New Zealand's novels of the 1800s was *Philosopher Dick* (1891), by George Chamier (1842-1915). The author describes his hero's efforts to understand the new land and its values. Another author who faced social issues was Edith Searle Grossman (1863-1931). She wrote novels as part of her campaign for women's rights.

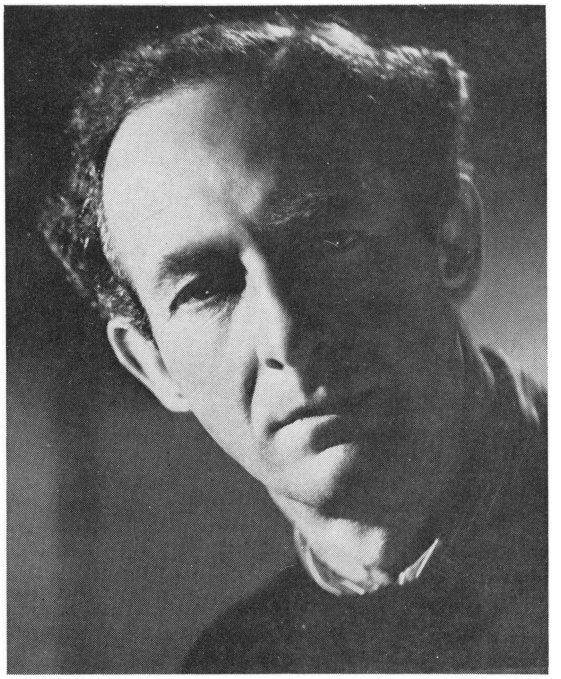
Few good New Zealand novels were published in the first 30 years of the 1900s, but today most critics still admire the novels of William Satchell (1860-1942). They include *The Land of the Lost* (1902), *The Toll of the Bush* (1905), *The Elixir of Life* (1907), and *The Greenstone Door* (1914). The novels of Jane Mander (1877-1949) are intelligent, feminine studies of life in small towns and isolated settlements. They include *The Story of a New Zealand River* (1920). The novels of Jean Devanny (1894-) were more violent. Her first novel, *The Butcher Shop* (1926), was about passion and murder on a sheep station. Most New Zealanders preferred to close their eyes to the less pleasing aspects of their society. But a writer such as John A. Lee (1891-) could insist on their attention with his *Children of the Poor* (1934). Another writer of energy and perception wrote about her own time and place under the pen-name Robin Hyde. Her real name was Iris Wilkinson (1906-1939). Between 1935 and 1938 she wrote five novels. They were *Passport to Hell, Check to Your King, Wednesday's Children, Nor the Years Condemn,* and *The Godwits Fly.* But the sharpest and most telling novel of these years was *Man Alone* (1939), by John Mulgan (1911-1945). The book takes a British migrant through some of the key experiences and tensions of New Zealand life in depression times. John Guthrie (1905-1955), author of *The Little Country* (1935), and G. B. Lancaster (1873-1945), author of *Promenade* (1938), still wrote about the past.

Since World War II, New Zealand fiction has ceased to be of mainly local interest. It is no longer unusual when a New Zealander's novel is published in London or New York. *Cliffs of Fall,* the first of several novels by Dan Davin (1913-), appeared



Otago Daily Times

Katherine Mansfield, New Zealand's greatest short-story writer, wrote in Europe about her childhood in New Zealand. She made her reputation with *Prelude,* published in 1918.



Bettina Photography

A. R. D. Fairburn, one of New Zealand's best poets, had wit and sensitivity. His poems reflect his interest in social behaviour.

Otago Daily Times

Janet Frame, one of New Zealand's most gifted novelists, has written novels about mental illness. She is noted for her beautiful poetic prose.

in 1945. This novel describes a sensitive student's problems in an Irish Catholic community in Southland. It digs deeply into a character with an urgency that was not common in earlier New Zealand writing.

The short-story writer Frank Sargeson (1903-) published his first novel, *When the Wind Blows,* in 1945. Later, he incorporated this novel in *I Saw in My Dream* (1949). His longest novel, *Memoirs of a Peon,* was published in 1965. In 1948 came three first novels from authors who went on to write other books. The novels were *Tidal Creek,* by Roderick Finlayson (1904-); *The Harp in the South,* by Ruth Park; and *The Cunninghams* by David Ballantyne (1924-). The same year, James Courage (1903-1963) published *The Fifth Child.* With this book, he resumed a novel-writing career that lasted until his death. In 1950, Guthrie Wilson (1914-) published *Brave Company.* This book is perhaps the best of several war novels by New Zealand writers.

The reputations of more recent novelists are still being built. But it is already clear that their craftsmanship and level of output are the equal of novelists anywhere else in the world. The names of some of them are as familiar to reviewers in Britain and the United States as they are to those in their own country. Most of these writers are less interested than their predecessors in social issues. They prefer to concentrate on the difficulties of individuals and on fragments of experience.

The gifted Janet Frame (1924-) writes in poetic prose of great beauty. She has explored aspects of mental illness in *Owls Do Cry* (1957) and in such subsequent novels as *Faces in the Water* and *The Edge of the Alphabet* (both 1962). Sylvia Ashton-Warner made an impressive beginning as a novelist with *Spinster* (1958). This novel tells of a dedicated teacher in a Maori school who refuses to be squashed by prejudice and rules and regulations. Another talented woman writer, Marilyn Duckworth (1935-), studied a New Zealand girl's loneliness in London in her first novel, *A Gap in the Spectrum* (1959).

A skilful novel of sin and punishment in a small town, *The God Boy* (1958), introduced Ian Cross (1925-). Noel Hilliard (1929-) looked at the destructive effects of city life on young Maoris in his *Maori Girl* (1960). Bill Pearson (1922-) examined a West Coast community in depth in *Coal Flat* (1963). In 1963, too, Redmond Wallis (1934-) published *Point of Origin.* This book is a briskly good-humoured novel about young people in Christchurch. Among the other accomplished present-day novelists are Maurice Gee (1931-), author of *The Big Season* (1962); Ruth France

(1913-), author of *The Race* (1958); M. K. Joseph (1914-), author of *A Pound of Saffron* (1962); Gordon Slatter (1922-), author of *A Gun in My Hand* (1959); and Errol Brathwaite (1924-), author of *An Affair of Men* (1960) and of a later group of three novels about the Maori Wars. New Zealand has a number of romantic and crime novelists. The best-known, Ngaio Marsh (1899-), published her first detective novel, *A Man Lay Dead,* in 1934. She now has an international reputation as a crime novelist.

Short Stories

The short story has been a popular form with New Zealand writers since before the 1900s. In the days when the country's publishers took little interest in New Zealand novels, several periodicals, in Australia as well as in New Zealand, printed New Zealand short stories. The success of Katherine Mansfield (1888-1923) was significant for later writers. She proved with her short stories that a New Zealand-born writer could be extremely successful.

An earlier woman writer, Lady Barker (1831-1911), was the first writer to use the short story form for charmingly perceptive impressions of New Zealand life. Lady Barker's five years in Canterbury gave her the material for two books—*Station Life in New Zealand* (1870) and *Station Amusements in New Zealand* (1873). Her story "Christmas Day in New Zealand" includes a "yarn" of the kind that New Zealand shepherds and other men in remote districts have always enjoyed spinning. Later examples include the *Me and Gus* stories of Frank S. Anthony (1891-1925), published as a collection in 1938, and the stories in best-selling books by Barry Crump (1935-), such as *A Good Keen Man* (1960). Among the early yarn-spinners were Alfred A. Grace (1867-1942), author of *Tales of a Dying Race* (1901), and Henry Lapham (1852-1887), author of *We Four and the Stories We Told* (1880).

Katherine Mansfield's first book, *In a German Pension,* was the outcome of a stay in Bavaria in 1909 and 1910. It was published in 1911. She later thought these sketches were "far too immature". They introduced characters and scenes that she was to return to in other stories. They suggested, too, how much she admired the Russian writer Anton Chekhov. During the next seven years she developed her art and her understanding of people. While in Europe, she turned in memory to the years she had spent growing up in New Zealand. Her second published book, *Prelude* (1918), established her fame. "New Zealand", she said, "is in my very bones." She remembered her country as a childhood place of garden parties, seaside holidays, night voyages, windy city streets, and family gatherings. Later collections of her stories are *Bliss* (1920), *The Garden Party* (1922), *The Doves' Nest* (1923), and *Something Childish* (1924).

Blanche Baughan (1870-1958), in her *Brown Bread from a Colonial Oven* (1912), dealt with important New Zealand themes. She anticipated later writers by experimenting with New Zealand slang. Alice T. Webb (1876-), in her *Miss Peters' Special* (1926), wrote warmly of life in a small community. She did not leave New Zealand.

Frank Sargeson also stayed in New Zealand. His first collection of stories, *Conversation With My Uncle,* appeared in 1936. He had read widely. He decided that the New Zealand writer could learn more from American fiction than from the traditional British models. But he had a strong personal vision and did much more than merely imitate the writers who influenced him. His ear for New Zealand speech, his compassion for underdogs, and the humour that accompanied his insights were extremely individual. He published a second collection, *A Man and His Wife,* in 1940. Later, he wrote novels, longer stories, and plays. His collected stories were published in London in 1964.

Maoris seldom appear in Sargeson's stories. But most of the characters in stories by Roderick Finlayson are Maoris. In *Brown Man's Burden* (1938) and *Sweet Beulah Land* (1942), Finlayson wrote about modern Maoris with considerable understanding. He did not hide his regret at the passing of older values.

Several writers of short stories appeared after World War II. G. R. Gilbert (1917-) followed his 1942 collection, *Free to Laugh and Dance,* with a short novel, *Glass-sharp and Poisonous* (1952). A. P. Gaskell (1913-), in *The Big Game* (1947), wrote vigorously about the undercurrents at such typically New Zealand events as school picnics and football matches. John Reece Cole (1916-), a fine stylist, drew upon his Royal Air Force experiences for some of the stories in his 1949 collection, *It Was So Late.* An eloquently experimental writer, Maurice Duggan (1922-), wrote stories that were collected in his *Immanuel's Land* (1956). Maurice Shadbolt (1932-) is one of the most fluent of present-day New Zealand writers. He published his first collection of stories, *The New Zealanders,* in 1959. Phillip Wilson (1922-) collected his stories in *Some Are Lucky* (1960). A much-travelled New Zealander who has many settings for his quietly observant stories is O. E. Middleton (1925-), author of *A Walk on the Beach* (1964).

Short stories by writers who are primarily novelists include *The Gorse Blooms Pale* (1947), by Dan Davin, *The Lagoon* (1952), by Janet Frame, *A Piece of Land* (1963), by Noel Hilliard, and *And the Glory* (1963), by David Ballantyne.

Poetry

People have spoken poetry in New Zealand for many hundreds of years. The Maoris were a race of poets. They passed down their chants, laments, and songs by word of mouth from one generation to another, because they had no written language before the arrival of the Europeans. They still speak some of these old poems at ceremonial gatherings.

Sir George Grey (1812-1898), when he was governor of New Zealand, collected and recorded Maori poetry and legends. His collection, *Laments and Songs of the Maori* (1853), contained 507 untranslated poems. An early missionary, Richard Taylor (1805-1873), translated many chants. He included

Spinster, a novel by Sylvia Ashton-Warner about a teacher in a Maori school, was made into a film with Shirley Maclaine playing the part of the teacher.

M.G.M.

them in a collection, *Te Ika a Maui* (*The Fish of Maui*), published in 1855. Here is an extract from his translation of "The Creation":

> Don't grieve that the earth is covered with water,
> don't lament for the length of time:
> the ocean's reign shall be broken,
> the ocean's surface shall be rough
> (with the lands springing up in it)
> with mountains standing forth,
> girdling round the sea,
> yes, round the sea.

In the earliest days of the colony, people wrote much verse. Every newspaper had its "poets' corner". Ballads and rhymes celebrated local events and the joys and hardships of pioneering. Some of the verse-writers enjoyed high standing in their little communities. John Barr of Craigielea (1809-1889) was much sought after to read his verses at social functions. He was a social satirist who made clever use of Scottish speech. His *Poems and Songs, Descriptive and Satirical* was published in Edinburgh in 1861.

Men prominent in public affairs wrote much of the serious poetry of the time. Alfred Domett (1811-1887), a friend of Robert Browning, had published verse before arriving in New Zealand in 1842. He was premier of New Zealand in 1862 and 1863. In 1872, he published a romantic epic, *Ranolf and Amohia,* that was notable mainly for its length. A minister of justice, C. C. Bowen (1830-1917), published his *Poems* in 1861. These poems had a veneer of colonial optimism. But they also reflected the disquiet and nostalgia of the exile.

William Pember Reeves (1857-1932) was the first of the poets to be born in New Zealand. He is chiefly remembered as a social reformer and historian. He wrote a good deal of cultivated verse. But New Zealand's most popular poet of his day was Thomas Bracken (1843-1898). He published more than a dozen books of verse. Most of it was extremely sentimental. He wrote the country's national anthem, "God Defend New Zealand", and a piece of moralizing, "Not Understood", that has kept its popularity equally well. Jessie Mackay (1864-1938) also wrote a great deal of verse. She published her first book, *The Spirit of the Rangatira,* in 1889. She took many of her themes from history and her Scottish heritage. But she also wrote about subjects nearer home when she championed such causes as prohibition and women's rights.

After 1900, many people wrote verses emphasizing the splendours of the local scene. But little good poetry resulted. An exception was Blanche Baughan's work. She experimented with New Zealand slang in her poetry as she had done in her short stories. The first book by Eileen Duggan, *Poems,* appeared in 1921. It showed her to be patriotic, compassionate, and devoutly religious.

R. A. K. Mason (1905-) also published his first poems during the 1920s. Many critics consider him to be New Zealand's best poet. But recognition of his talent was not immediate. Mason threw 200 copies of *The Beggar* (1924) into Auckland harbour because he despaired of finding an audience for it. His style was austere and sardonic. He preferred established forms, especially the sonnet. In *No New Thing* (1934), he described his verses as "sponges steeped in vinegar/ useless to the happy-eyed/ but handy for the crucified."

The 1930s, years of economic depression, brought a tougher spirit to New Zealand poetry. Other poets also began writing tightly disciplined poetry of vigour, wit, and beauty. Conspicuous among them were A. R. D. Fairburn (1904-1957), Allen Curnow

(1911-), and Denis Glover (1912-). The Caxton Press, founded by Glover in Christchurch, and the Auckland presses of Robert Lowry (1912-1963) played a vital part in printing the work of these poets. Fairburn, a wit who was not afraid of a sweet phrase, denounced the crumbling New Zealand society of depression times in his most ambitious poem, *Dominion* (1938). Curnow, an industrious craftsman, turned from satirical verses to such poetic sequences as *Not in Narrow Seas* (1939) and *Island and Time* (1941). Glover has written many *lampoons* (personal satires). But he has also written poems full of understanding and pity. The most notable of these appear in *Sings Harry* (1951) and *Arawata Bill* (1952).

Other good poets of the "revolutionary" period included Charles Brasch (1909-), Robin Hyde, Mary Ursula Bethell (1874-1945), and Basil Dowling (1910-). During the same period, D'Arcy Cresswell (1896-1960), author of *Lyttelton Harbour* (1936), continued to write ornate verse.

Since World War II, many young poets have published volumes of verse. Some of these poets have been respectful followers of such poets as Mason and Curnow. Others have used such typical New Zealand themes as isolation, awesome landscape, Polynesian past, and choking suburbia. Several small printing presses, helped by subsidies from the State Literary Fund, have encouraged them by publishing their works. The literary quarterly *Landfall,* edited from 1947 to 1966 by Charles Brasch, has also published their verse. The *New Zealand Poetry Yearbook,* edited since 1951 by Louis Johnson (1924-), a lively poet, has ensured regular publication for both established and new poets. Prominent present-day poets include James K. Baxter (1926-1972), author of *In Fires of No Return* (1958); Alistair Campbell (1925-), author of *Wild Honey* (1964); Keith Sinclair (1922-), author of *A Time to Embrace* (1963); Kendrick Smithyman (1922-), author of *The Blind Mountain* (1950); Gloria Rawlinson (1918-), author of *Of Clouds and Pebbles* (1963); and C. K. Stead (1932-), author of *Whether the Will Is Free* (1964).

Non-Fiction

New Zealand has had many historians, diarists, and chroniclers. The first of them provided later scholars with a rich source of material. The outstanding example is an edition, launched in 1955, of the journals of the British explorer James Cook (1728-1779). The series, edited by J. C. Beaglehole, is a remarkable record of Cook's expeditions and of his views on the Maoris he met. Recent scholarship has also produced an absorbing edition of the *Letters and Journals* of the missionary Samuel Marsden (1765-1838). The works of the early navigators Julien Crozet (1728-1780) and Dumont d'Urville (1790-1842) are among other pre-colonial writings that continue to fascinate scholars.

One of the most sprightly books about the young land was *New Zealand: Being a Narrative of Travels and Adventures* (1838), by Joel Samuel Polack (1807-1882). *Adventure in New Zealand* (1845), by Edward Jerningham Wakefield (1820-1879), surpassed Polack's book in literary skill, if not in gusto. Wakefield was the son of the founder of the New Zealand Company. The book entertainingly describes Wakefield's work with the company. Sir George Grey's *Mythology and Traditions of the New Zealanders* (1854) has, like his two other collections of Maori legends, proved a valuable source book. A book now regarded as a New Zealand classic is *Old New Zealand* (1862), by F. E. Maning (1811-1883). It is a work of great vigour. But its references to Maori customs are not altogether trustworthy. Samuel Butler (1835-1902), author of *The Way of All Flesh,* contributed to New Zealand literature with his *A First Year in Canterbury Settlement* (1863), put together by his parents from the letters he wrote during his brief stay.

Few of the books about the Maori Wars had enduring value. Among the good ones was *The Maori King* (1864), by Sir John Gorst (1835-1916), who was an administrator in an area where the Maoris fought most bitterly. The New Zealand government commissioned James Cowan (1870-1943), a historian of great energy, to write *The New Zealand Wars.* The first volume appeared in 1922. In 1898, William Pember Reeves published his excellent history of New Zealand, *The Long White Cloud.* W. H. Guthrie-Smith (1861-1940) described life on a New Zealand sheep station and sketched fully the history and geography of an entire area in *Tutira* (1921).

Outstanding among present-day New Zealand historians is Keith Sinclair, author of *Origins of the Maori Wars* (1957) and of *A History of New Zealand* (1959). *Early Victorian New Zealand* (1958), by John Miller (1924-), is a work that is enjoyable to read and shows considerable scholarship. Two exercises in autobiography by D'Arcy Cresswell, *The Poet's Progress* (1930) and *Present Without Leave* (1939), reflect a highly individual philosophy. E. H. McCormick (1906-) is the most accomplished of the country's critics. He is the author of *Letters and Art in New Zealand* (1940), revised as *New Zealand Literature* (1959). M. H. Holcroft (1902-) is a stimulating essayist. He is the author of *Discovered Isles* (1950), a three-part work that rewardingly examines the nature of creative problems in New Zealand.

Related Articles. See MANSFIELD, KATHERINE, in the main volumes. Other related articles in the Australasian volumes of WORLD BOOK include:

Barker, Lady
Baughan, Blanche
Baxter, James K.
Beaglehole, J. C.
Bracken, Thomas
Crump, Barry
Domett, Alfred
Dumont D'Urville, Jules
Frame, Janet
Grey, Sir George
Hyde, Robin
Lee, John A.
Literary Awards
Maning, Frederick Edward
Marsden, Samuel
Marsh, Dame Ngaio
Pyke, Vincent
Reeves, William Pember
Sargeson, Frank
Satchell, William
Scholefield, Guy Hardy
Stewart, Douglas
Taylor, Richard

LITHGOW (pop. 13,135), is an industrial town in New South Wales. It lies 975 metres (3,200 feet) above sea level in the Blue Mountains, 150 kilometres (94 miles) west of Sydney. The federal government's small-arms factory, situated in Lithgow, is the largest precision engineering works in the southern hemisphere. The town's other industries include coal production, steel prefabrication, and clothing and textile manufacturing. The surrounding district produces wool and beef.

LITTLE BARRIER ISLAND is a wooded island northeast of Auckland, in New Zealand. It rises steeply to 726 metres (2,383 feet) above sea level. The island is a bird sanctuary. Many birds that are now rare on the mainland, including the kiwi, live there.

LITTORAL ZONE ROCK PLATFORMS are platforms of rock along the sea shore. They are a common feature of the Australian and New Zealand coastlines. Most of them are large expanses of bedrock that have been eroded at sea level. They may be nearly horizontal or they may slope slightly seawards. They range greatly in height, some remaining submerged even at low tide level, and others standing above water at high tide. Platforms are formed by the physical erosion of breaking waves and by the chemical erosion of seawater.

Wide horizontal platforms occur near high tide level on much of the New South Wales coastline, on parts of the Victorian and Tasmanian coastline, and around much of the North Island of New Zealand. On the coasts of much of Western Australia and parts of South Australia and Victoria, the platforms are also horizontal but are at low tide level. Rock platforms are only weakly developed along the Queensland coast north of Gladstone because of the sheltering effect of the Great Barrier Reef. One of the largest horizontal high tide littoral rock platforms in the world is found at Long Reef, a northern suburb of Sydney. It is over 350 metres (1,150 feet) wide.

LIZARDS. See REPTILES in the other Australasian volume.

LOCKWOOD, DOUGLAS (1918-), an Australian author, wrote *I, the Aboriginal* (1963). This biography tells the story of Waipuldango, an Aborigine of the Alawa tribe in the Roper River district. Waipuldango was an employee of the Commonwealth Health Department in the Northern Territory. He was known in Darwin as Philip Roberts.

An outstanding biography, the book is important for its sympathetic insight into the outlook and customs of the tribal Aborigine and the problems encountered in reconciling two ways of life. Lockwood's other books include *Crocodiles and Other People* (1959).

LOCKYER, EDMUND (1784-1860), a British soldier, discovered coal while exploring the Brisbane River in 1825. In 1826, Governor Darling sent Lockyer to Western Australia in the brig *Amity*. Lockyer annexed the territory in the name of Britain before the French could claim it. He founded the town of Albany and returned to Sydney in 1827. Lockyer was born in Devon, England. He joined the British army in 1803 and arrived in Australia in 1825 with his wife and 11 children.

LOGAN, PATRICK (1791-1830), a British soldier, was put in charge of the Moreton Bay convict settlement in March, 1825. Logan established a penal colony record by ordering convicts punished with more than 11,000 lashes of the whip in eight months. He maintained this brutal regime for five and a half years. Logan was killed in mysterious circumstances, either by convicts or by Aborigines. Logan's treatment of the convicts now seems cruel, but he was only carrying out his duties as commandant as he was directed and in the tradition of the period. He did much to explore and open up large areas for settlement around Brisbane. Logan was born at Coldingham, Scotland.

LOMBOK. See NUSA TENGGARA in the other Australasian volume.

LONSDALE, WILLIAM (1800?-1864), served Melbourne in many ways during its first 18 years. In 1837, Governor Bourke appointed him first police magistrate at Port Phillip. Lonsdale chose the site for the official centre of the settlement, which was named Melbourne. In 1840, he was appointed subtreasurer of Port Phillip. He became acting mayor of Melbourne in 1842 and superintendent of the settlement in 1846 and 1847. When Victoria became a separate colony in 1851, Lonsdale became first colonial secretary, then in 1853 colonial treasurer. Lonsdale was born in Britain and arrived in Sydney in 1831 as a lieutenant in the British army. He returned to Britain in 1854.

See also MELBOURNE (History) in the other Australasian volume.

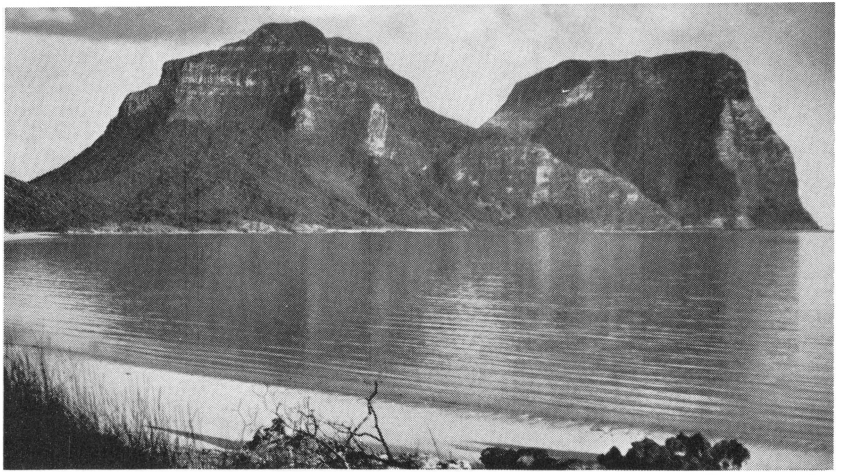
LORD, SIMEON (1770-1840), was a pioneer merchant who became one of the wealthiest men in New South Wales during the early years of its settlement. He was the first man to weave cloth from Australian wool. In his mills at Botany Bay, he made coarse cloth, blankets, stockings, and hats from locally produced wool.

Lord was born at Rochdale, in England. He was transported to Australia in 1791 for theft, and served seven years as a convict.

In 1800, Lord bought a trading ship. He also practised as a public auctioneer and estate agent. He soon became one of the colony's leading businessmen. He supplied the government with local and imported articles, and traded with such cargoes as coal, cedar, sandalwood, and sealskins, using his own ships.

Simeon Lord
The Mitchell Library

In 1803, he took advantage of the short-lived peace between Britain and France to import rum from Mauritius, a French colony, in American ships. In 1810, he was appointed a magistrate. But Commissioner John Thomas Bigge claimed that Lord was unsuitable and, in 1820, forced Lord to resign (see BIGGE, JOHN THOMAS, in this volume).



Australian News and Information Bureau

Lord Howe Island is only 11 kilometres (7 miles) long and 1·6 kilometres (1 mile) wide. An air service links it with Sydney, and the island has become a popular resort for Australians.

LORD HOWE ISLAND (pop. 223) is a volcanic island off the eastern coast of Australia, almost 650 kilometres (400 miles) north-east of Sydney. It is a dependency of New South Wales. Its area is 1,303 hectares (3,220 acres).

LOW, SIR DAVID (1891-1963), became famous for his cartoon caricatures of British statesmen. One of his best-known characters was "Colonel Blimp", a caricature of a certain type of British conservative. In 1927, Low became chief cartoonist for a London newspaper, the *Evening Standard*. In 1953, he joined the *Manchester Guardian* (now *The Guardian*). Low was born at Dunedin, in New Zealand. He settled in Britain in 1919.

LOWE, ROBERT (1811-1892), a British barrister, played a prominent part in Australian politics in the 1840s. He supported a plan to separate the Port Phillip district (now Victoria) from New South Wales, advocated land reform and representative government, and did much to end the transportation of convicts to New South Wales. Lowe was born at Bingham, in England. He was educated at Oxford University, and became a barrister in 1842. He settled in Sydney in the same year. He served as a member of the Legislative Council in 1843 and 1844 and from 1845 to 1850, when he returned to Britain. In 1852, he entered the House of Commons. In 1880, he was given the title VISCOUNT SHERBROOKE.

LOWER HUTT (pop. 58,561) is an industrial city 14 kilometres (9 miles) north of Wellington in the North Island of New Zealand. It stands on the Hutt River, near the northern shore of Wellington Harbour.

Lower Hutt is the chief manufacturing centre in the Hutt Valley. Its industries include two motor-car assembly plants, paint and chemical plants, railway workshops, engineering works, and textile mills. In addition, the city has two important scientific research establishments. Lower Hutt's modern civic centre includes a town hall, theater, library, art gallery, and conservatory.

LYDIARD, ARTHUR (1917-), a New Zealand coach, developed successful techniques for training long-distance runners. He encouraged athletes to strengthen their hearts and harden their muscles by long runs over rough, hilly ground. Lydiard used this technique to train New Zealand runners Murray Halberg and Peter Snell. They then won Olympic games races. Lydiard was born at Auckland.

LYONS was the name of two Australian politicians, husband and wife.

Joseph Lyons (1879-1939) was prime minister of Australia from 1932 to 1939. In the early 1930s, a dispute over economic policy caused a split in the governing Labor party. Lyons resigned from the government and joined the opposition, the Nationalist party, to form the United Australia party. This party won an overwhelming victory in a federal election in late 1931, and Lyons became prime minister. The United Australia party lost seats in the federal election of 1934, but Lyons remained in office by forming a coalition with the Country party. As prime minister, he helped the country to recover from the economic depression that had begun in the late 1920s.

Australian News

Joseph Lyons

Lyons was born on a farm near Stanley, in Tasmania. He qualified as a teacher in 1896, and entered the Tasmanian parliament in 1909. He was premier of Tasmania from 1923 to 1928. He entered the federal parliament in 1929.

Dame Enid Lyons (1897-) became the first woman member of the House of Representatives. She entered parliament as Liberal party member for Darwin, Tasmania, in 1943. She was also the first and only woman to reach cabinet rank. She was vice-president of the executive council from 1949 until her retirement from parliament in 1951. From 1951 to 1962, she was a member of the Australian Broadcasting Commission. She was born at Leesville in Tasmania.

LYREBIRD. See LYREBIRD in the main volumes.

LYTTELTON (pop. 3,281) is a town and port on the eastern coast of the South Island of New Zealand. It is the main port serving the city of Christchurch and Canterbury province and is the largest and busiest port in the South Island. Each year it handles about 1,802,420 tonnes (1,774,055 tons) of cargo. Most of the town is built on steep slopes. Much of the lower area is built on reclaimed land.